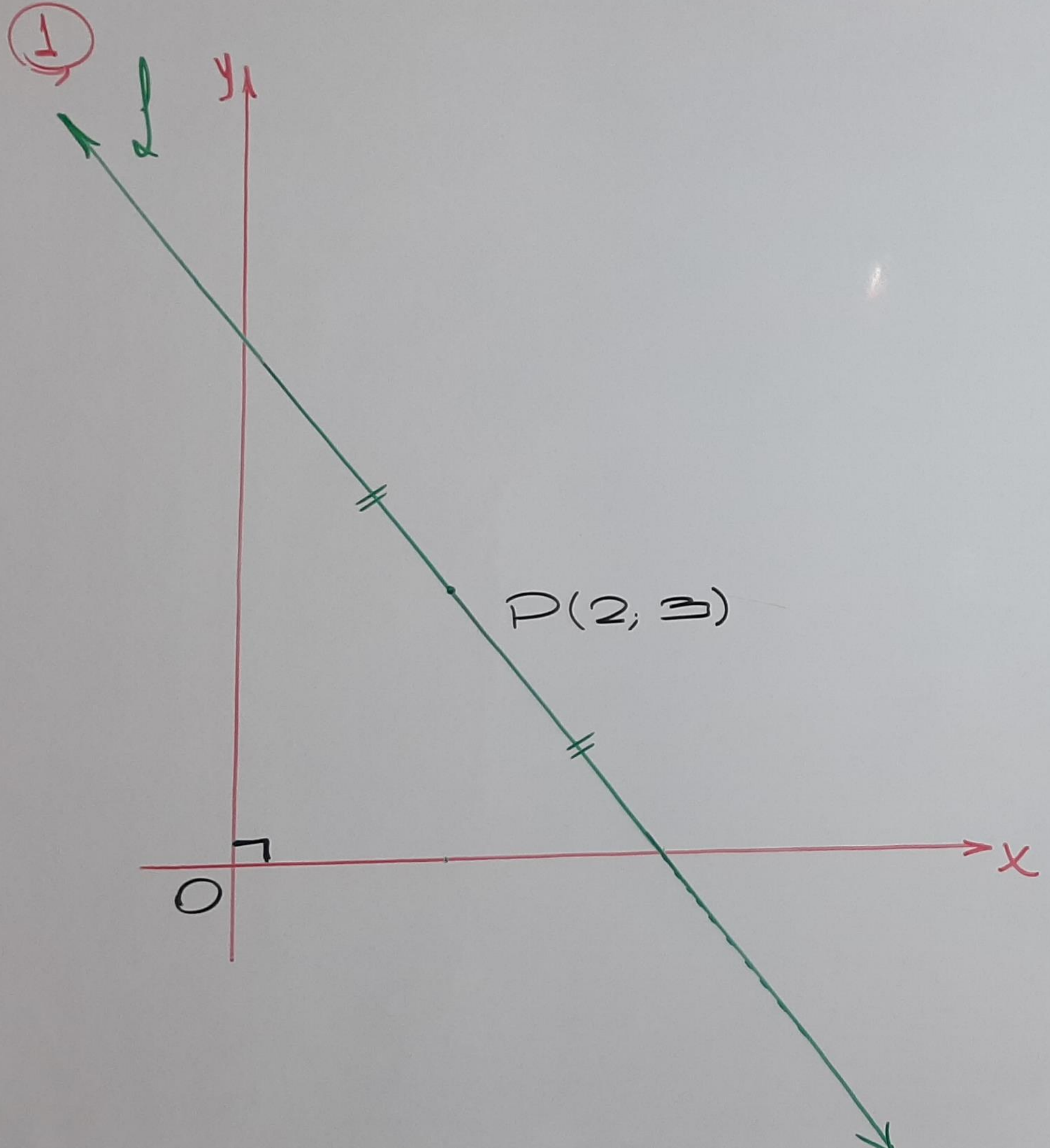
MOMENTO DE PRACTICAR

PROBLEMAS Y RESOLUCIÓN

Problema 1:

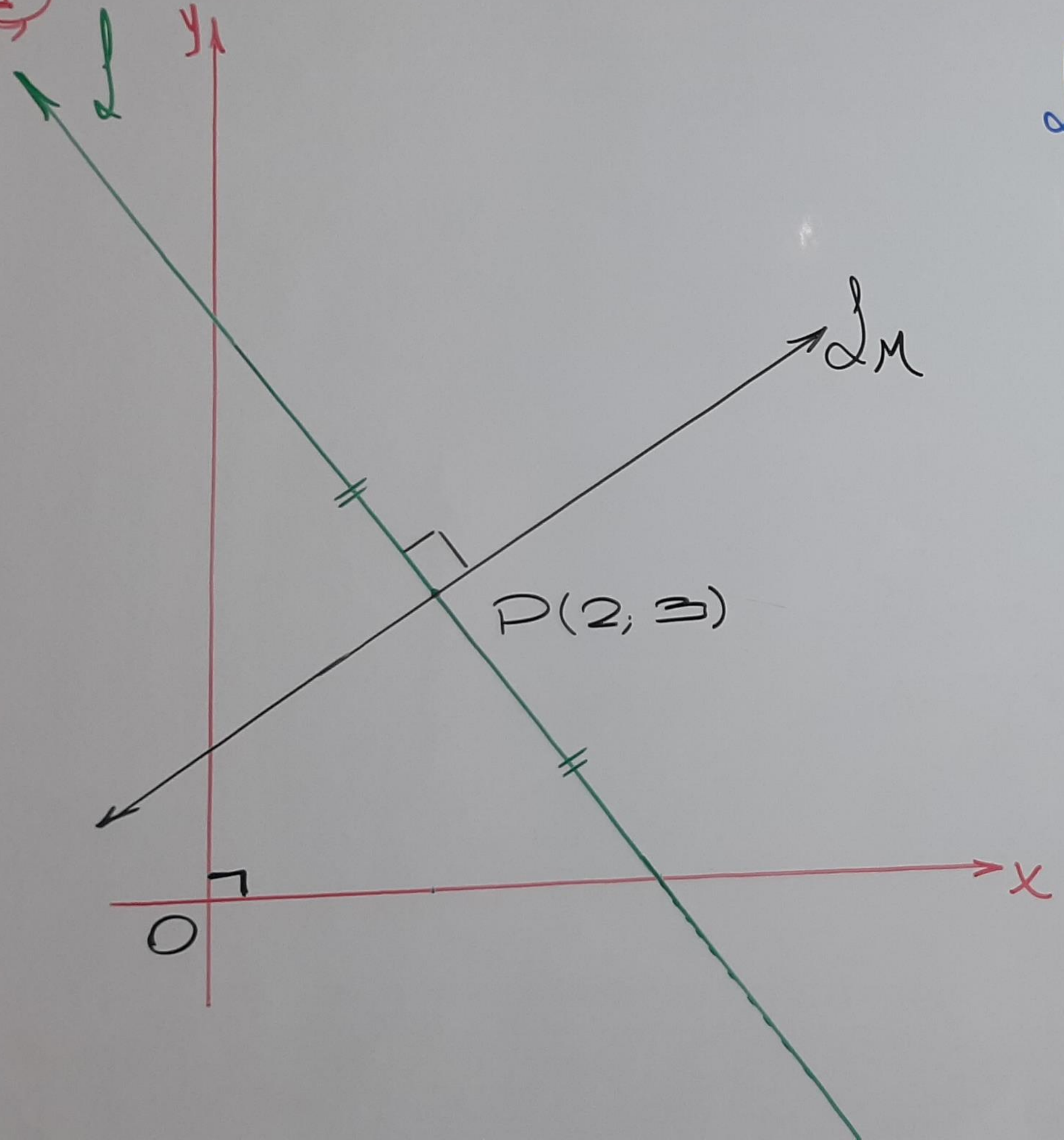
En el punto (2;3) biseca al segmento determinado por una recta L al intersectar a los ejes coordenados. Hallar la ecuación de la mediatriz de dicho segmento.

A) $2x - y - 1 = 0$
B) $2x - 3y + 5 = 0$
C) $3x - 2y + 2 = 0$
D) $3x - y - 3 = 0$
E) $x + y - 5 = 0$

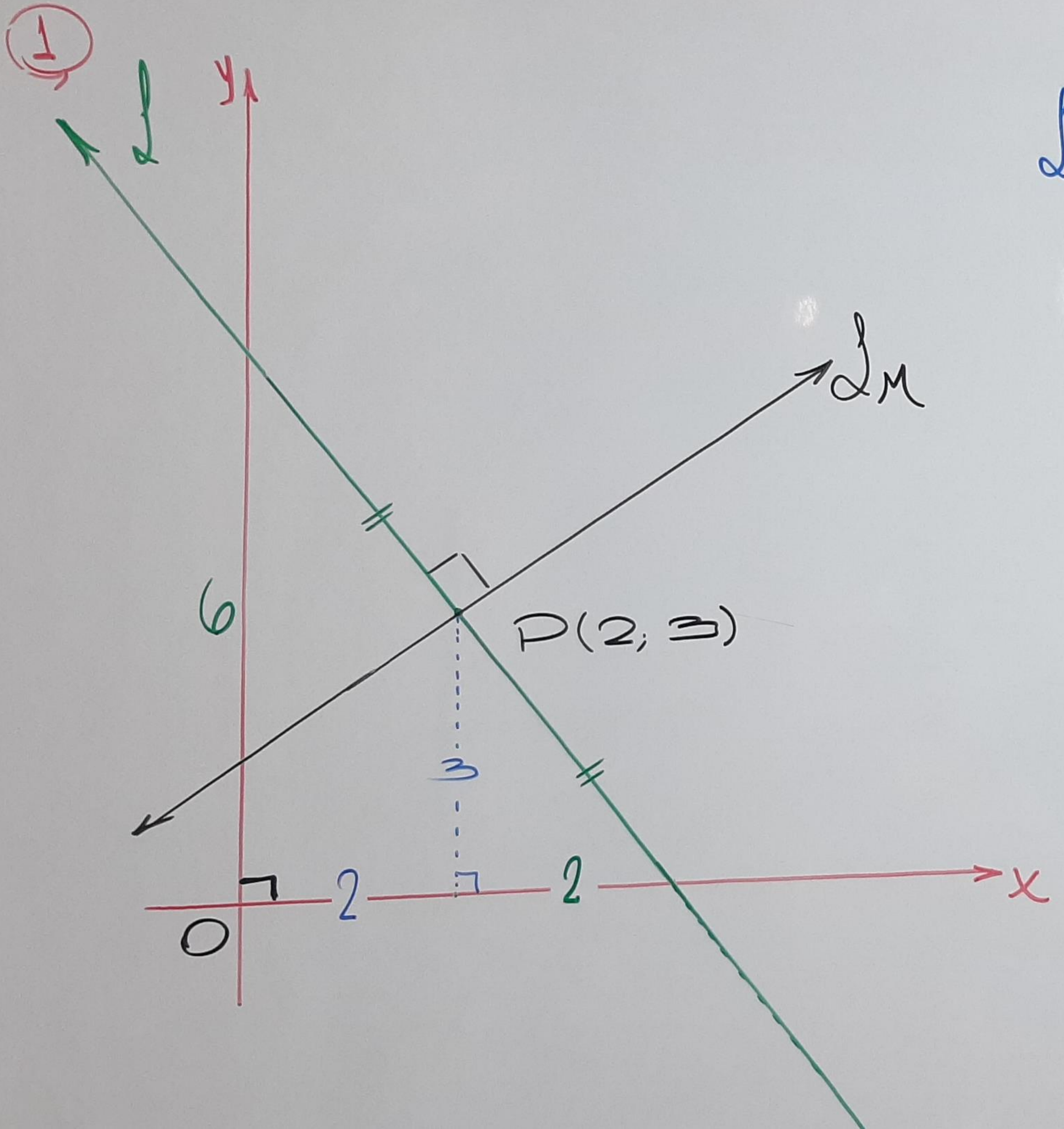


1
l
y
P(2; 3)
x
O

1

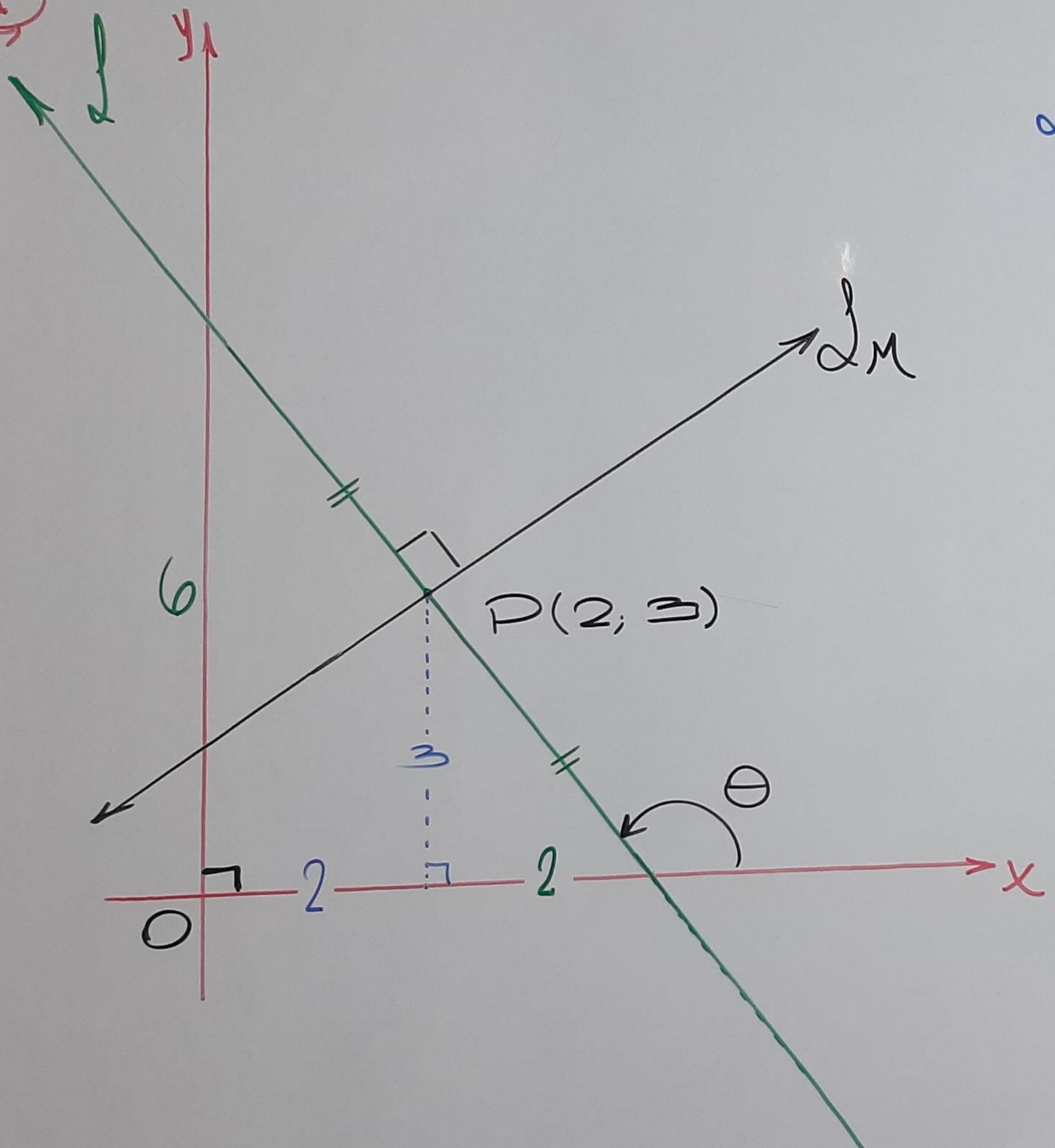


$$\ell_M \left\{ \begin{array}{l} P(\overset{x_0}{2};\ \overset{y_0}{3}) \\ \\ m = ? \end{array} \right.$$



$$d_M \begin{cases} P(\overset{x_0}{2};\ \overset{y_0}{3}) \\ m = ? \end{cases}$$

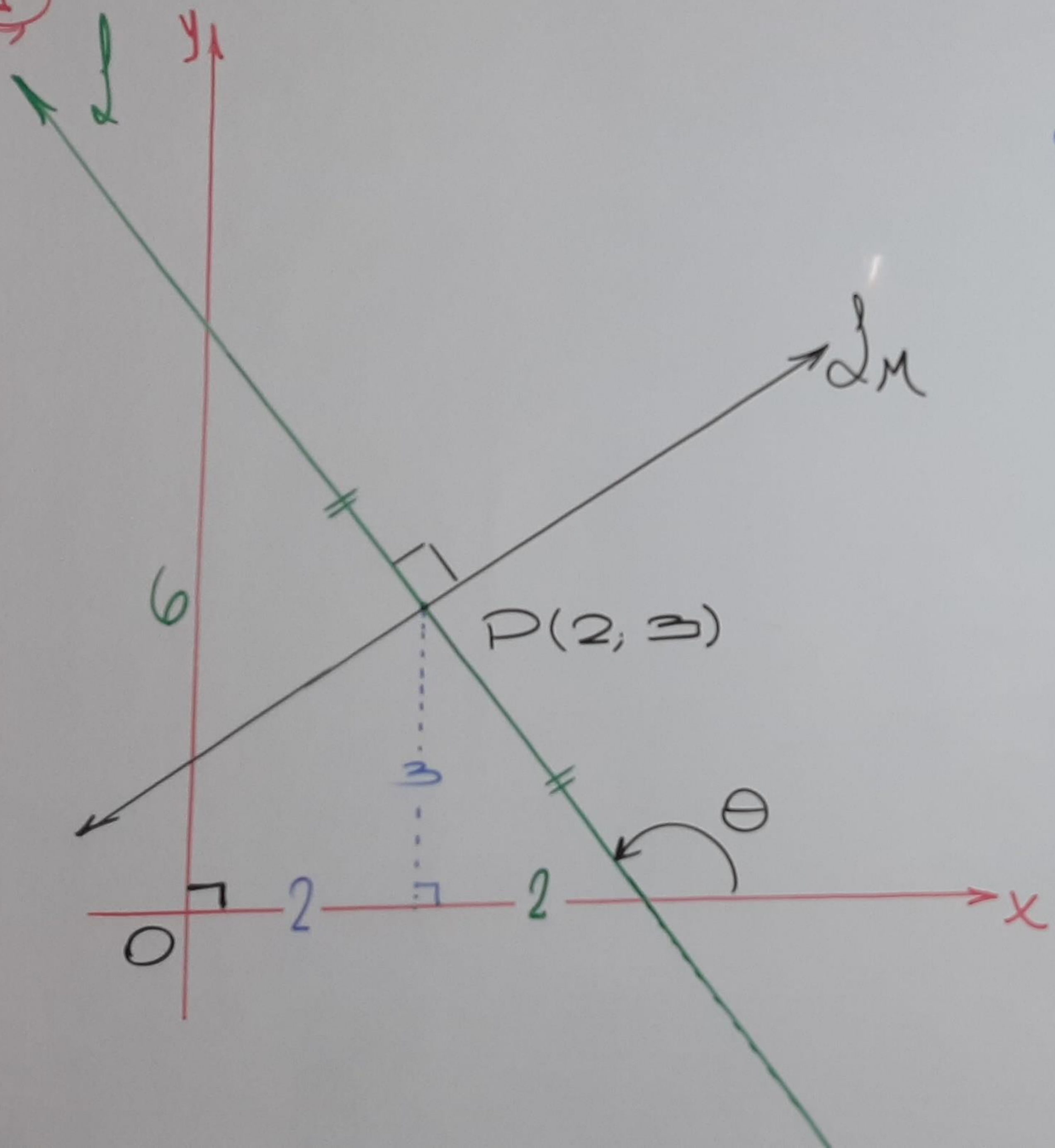
1



$$d_M \begin{cases} P(\overset{x_0}{2}; \overset{y_0}{3}) \\ m = ? \end{cases}$$

$$m_d = \tan\theta = -\frac{6}{4} = -\frac{3}{2}$$

1

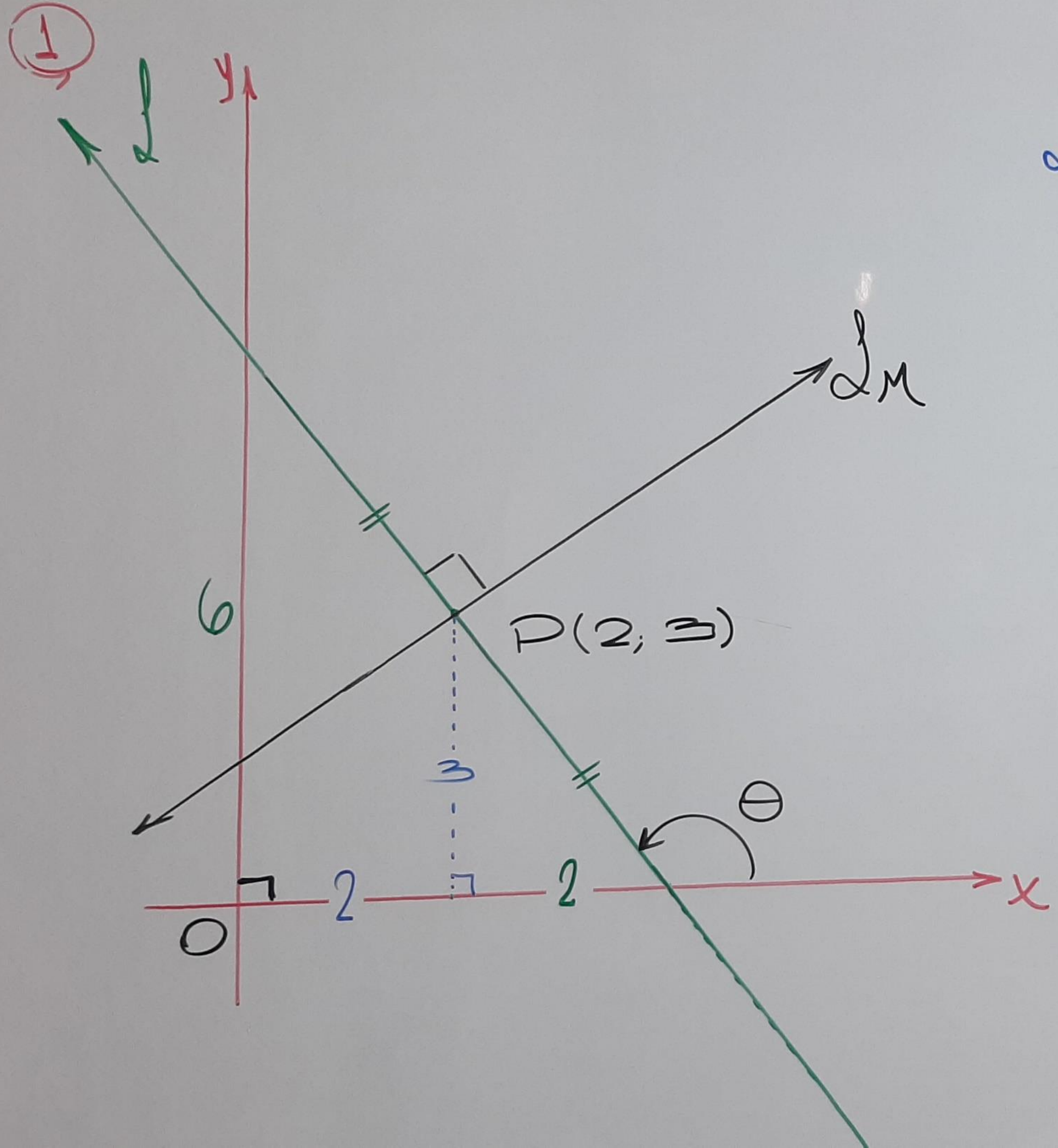


$x_0 \quad y_0$

$d_M \begin{cases} P(2;\,3) \\ m = ? \end{cases}$

✓ $m_d = \tan\theta = -\dfrac{6}{4} = -\dfrac{3}{2}$

✓ $d \perp d_M \rightarrow m = +\dfrac{2}{3}$



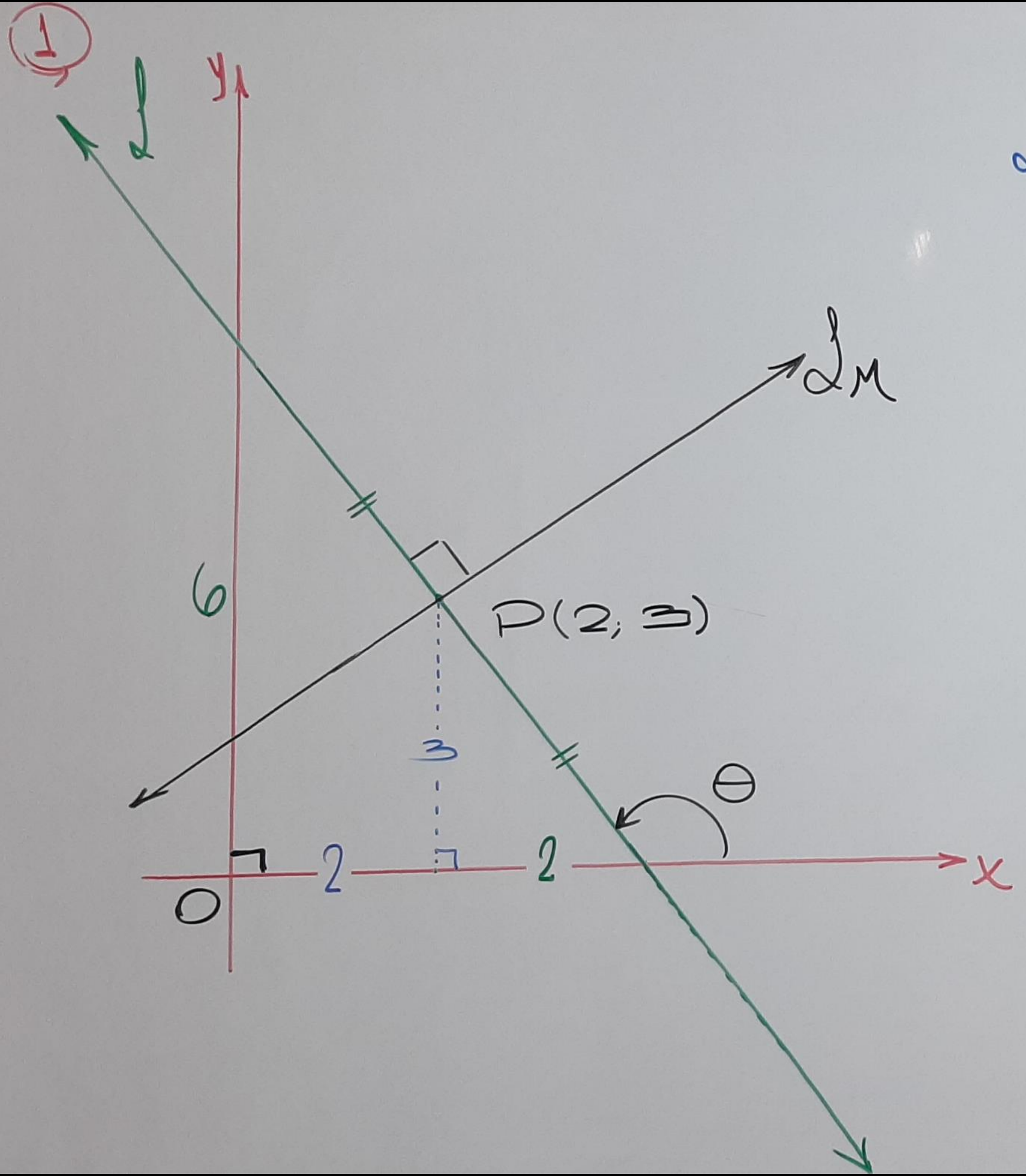
$$d_M \begin{cases} P(\overset{x_0}{2};\ \overset{y_0}{3}) \\ m = \ ? \end{cases}$$

✓ $m_d = \tan\theta = -\dfrac{6}{4} = -\dfrac{3}{2}$

✓ $d \perp d_M \Rightarrow m = +\dfrac{2}{3}$

✓ $y - y_0 = m(x - x_0)$

$y - 3 = \dfrac{2}{3}(x - 2)$



$$\mathcal{L}_M \begin{cases} P(\overset{x_0}{2};\ \overset{y_0}{3}) \\ m = ? \end{cases}$$

✓ $m_{\mathcal{L}} = \tan\theta = -\dfrac{6}{4} = -\dfrac{3}{2}$

✓ $\mathcal{L} \perp \mathcal{L}_M \rightarrow m = +\dfrac{2}{3}$

✓ $y - y_0 = m(x - x_0)$

$y - 3 = \dfrac{2}{3}(x - 2)$

$3y - 9 = 2x - 4$

$\therefore\ \mathcal{L}: 2x - 3y + 5 = 0$

CLAVE B

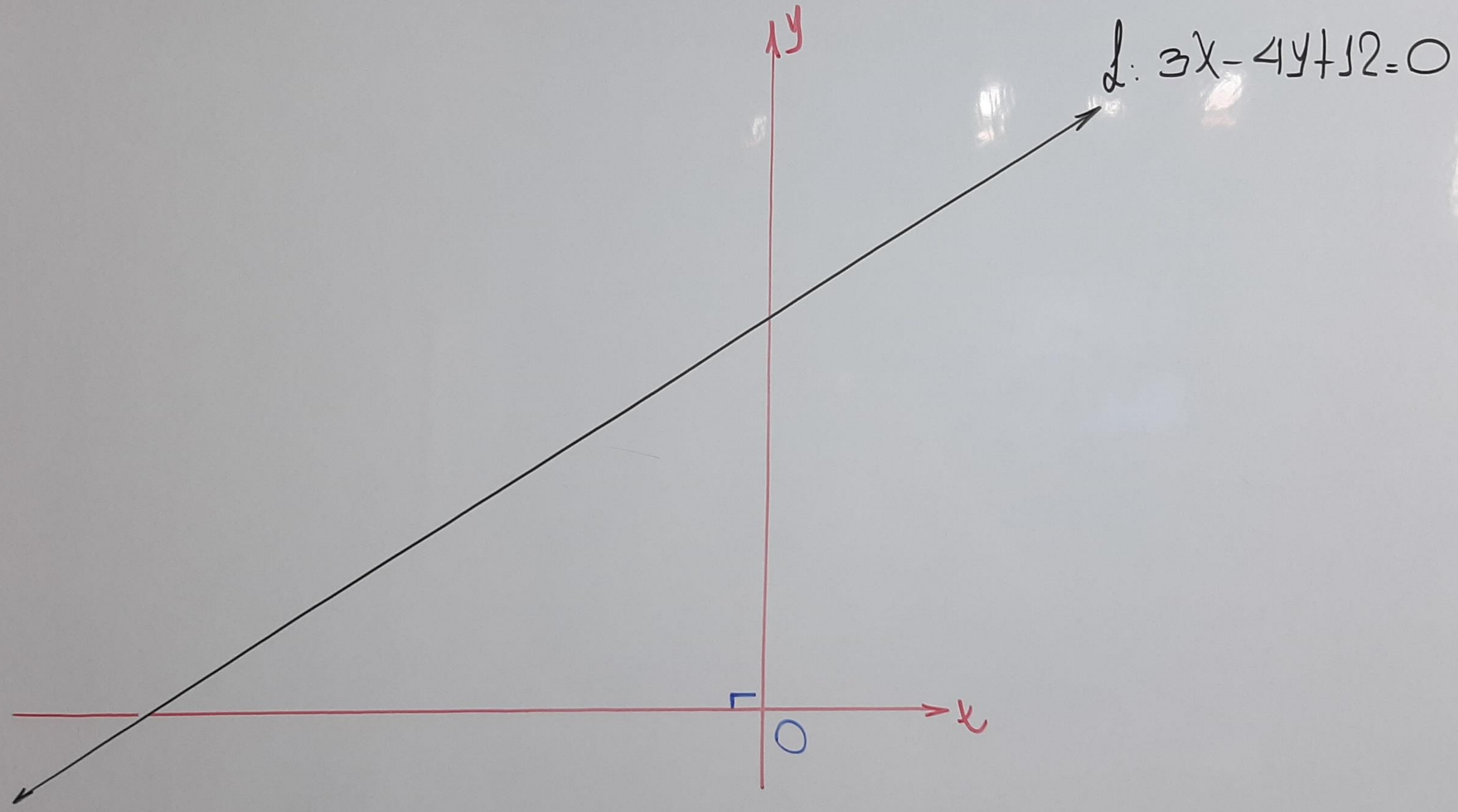
Problema 2:

La recta $L: 3x - 4y + 12 = 0$, intersecta al eje Y en el punto G, desde (6;0) se traza una perpendicular a L que lo intersecta en F. Calcular la distancia entre F y G.

A) 2 B)3 C) 4

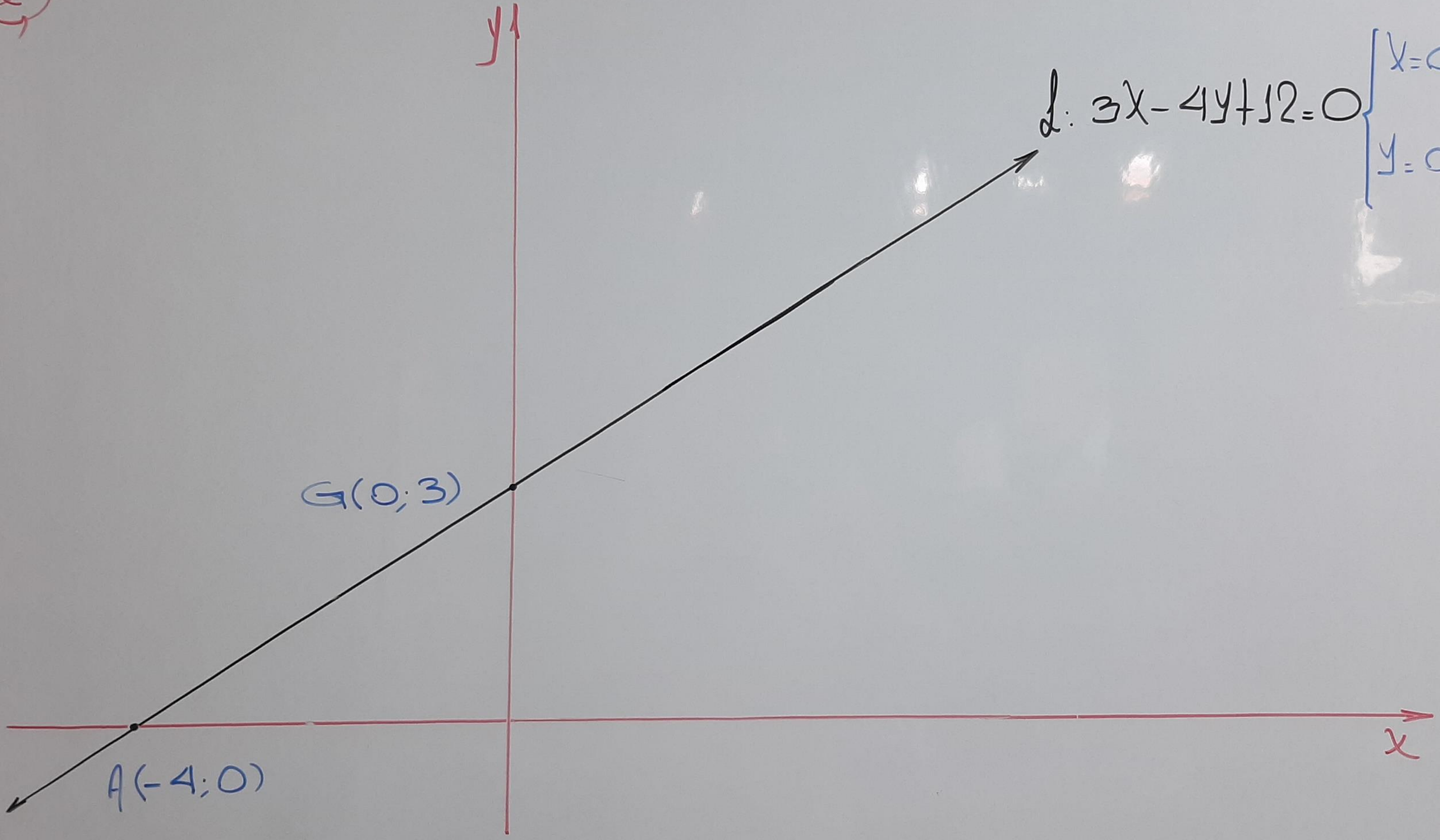
D) 5 E) 6

2

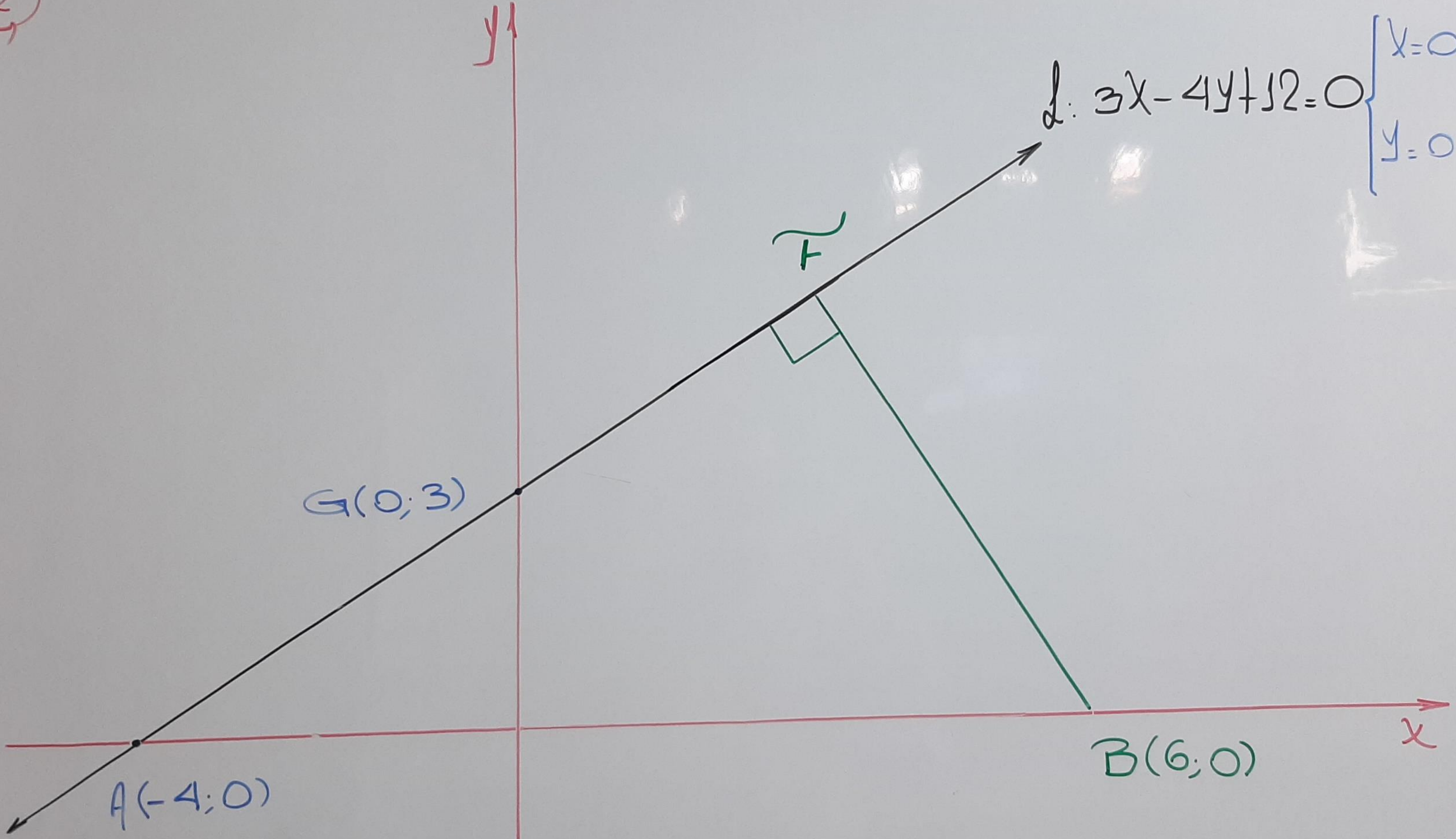


2

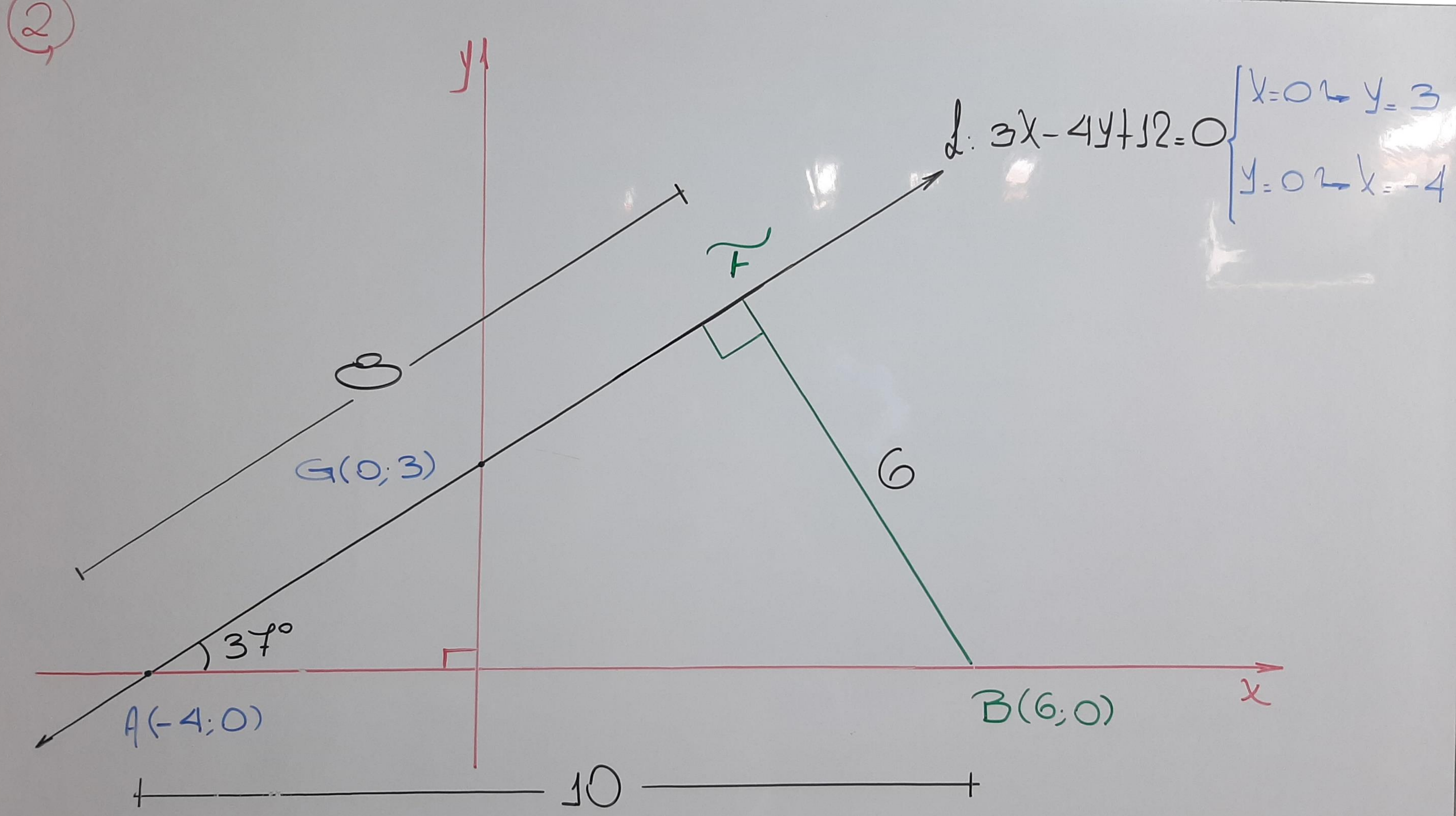
$$d: 3x-4y+12=0 \begin{cases} x=0 \rightarrow y=3 \\ y=0 \rightarrow x=-4 \end{cases}$$



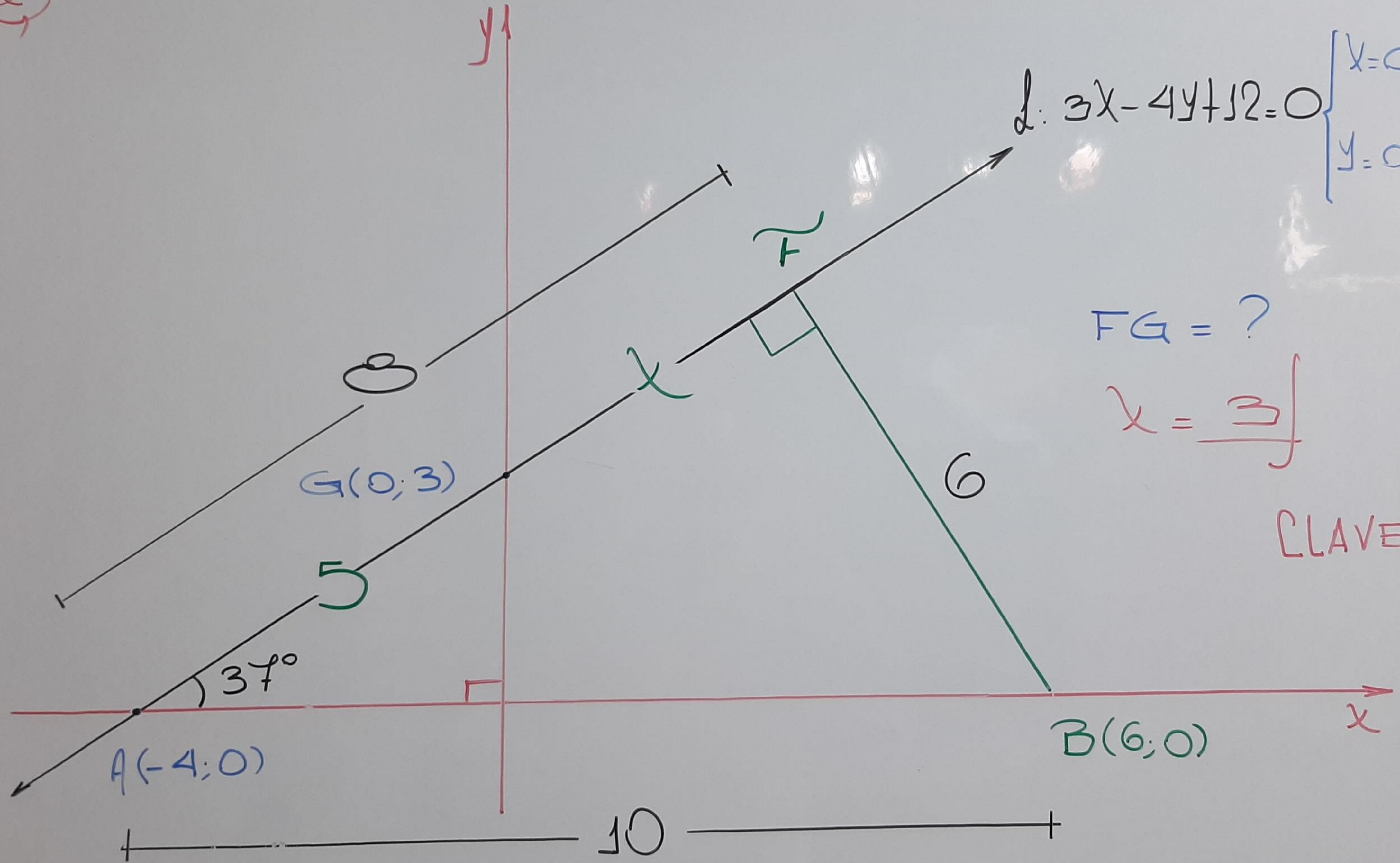
2



$$\ell: 3x-4y+12=0 \begin{cases} x=0 \to y=3 \\ y=0 \to x=-4 \end{cases}$$


②
y
x
ℓ: 3x − 4y + 12 = 0
x = 0 → y = 3
y = 0 → x = −4
F
8
6
G(0; 3)
37°
A(−4; 0)
B(6; 0)
10

2



$L: 3x - 4y + 12 = 0 \begin{cases} x = 0 \to y = 3 \\ y = 0 \to x = -4 \end{cases}$

$FG = ?$

$\underline{x = 3}$

CLAVE B

Problema 3:

La pendiente de una recta es igual a Cot40° y pasa por F(-3;0). Hallar la ecuación de la recta que pasa por F y forma con la recta anterior un ángulo de 10°. (Dar una solución)

A) $3x - \sqrt{3}y - 9 = 0$

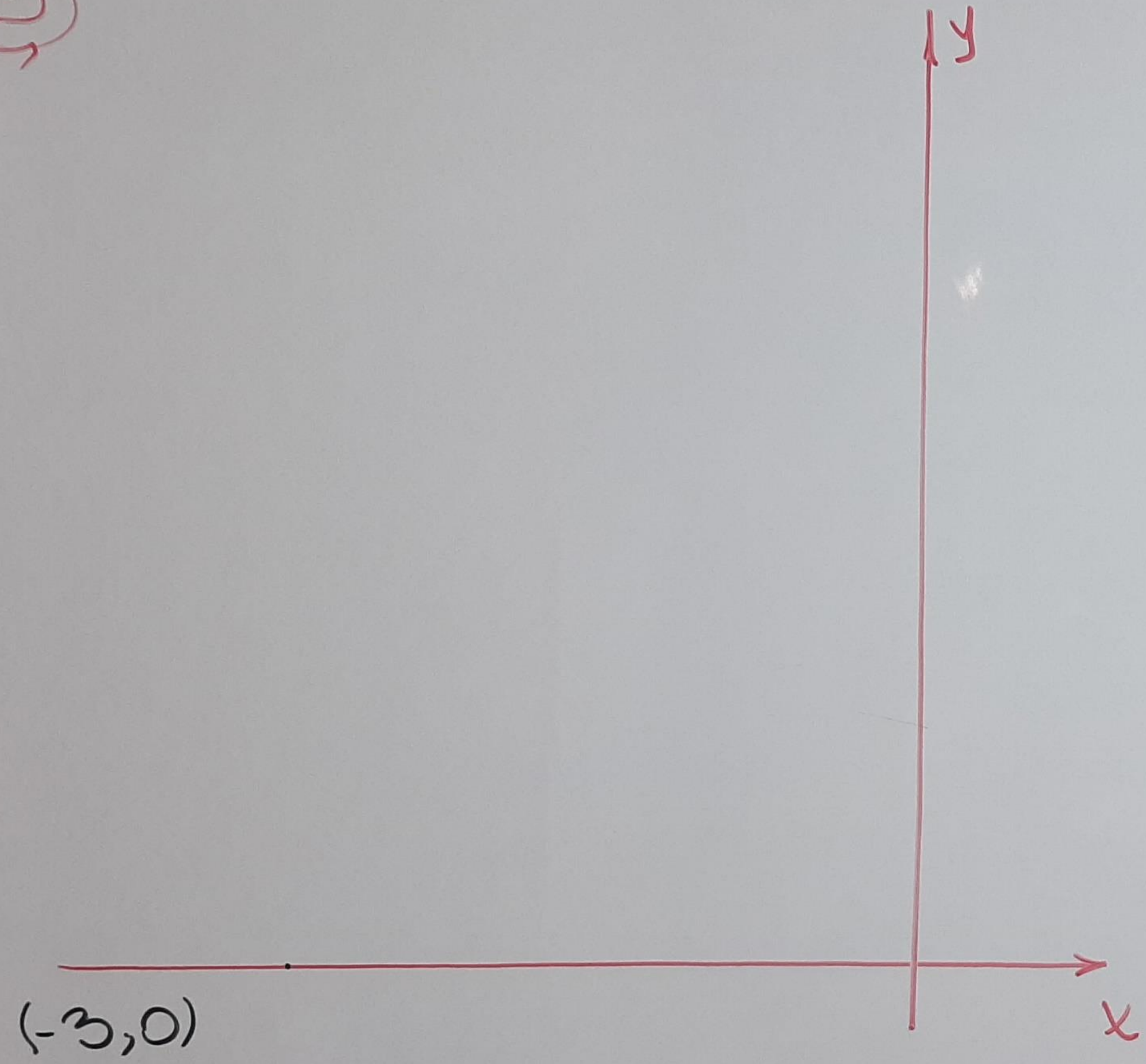
B) $y = \sqrt{3}x - 3\sqrt{3}$

C) $y - \sqrt{3}x - 3 = 0$

D) $\sqrt{3}x + 3y - 9 = 0$

E) $y + x - 3 = 0$

3

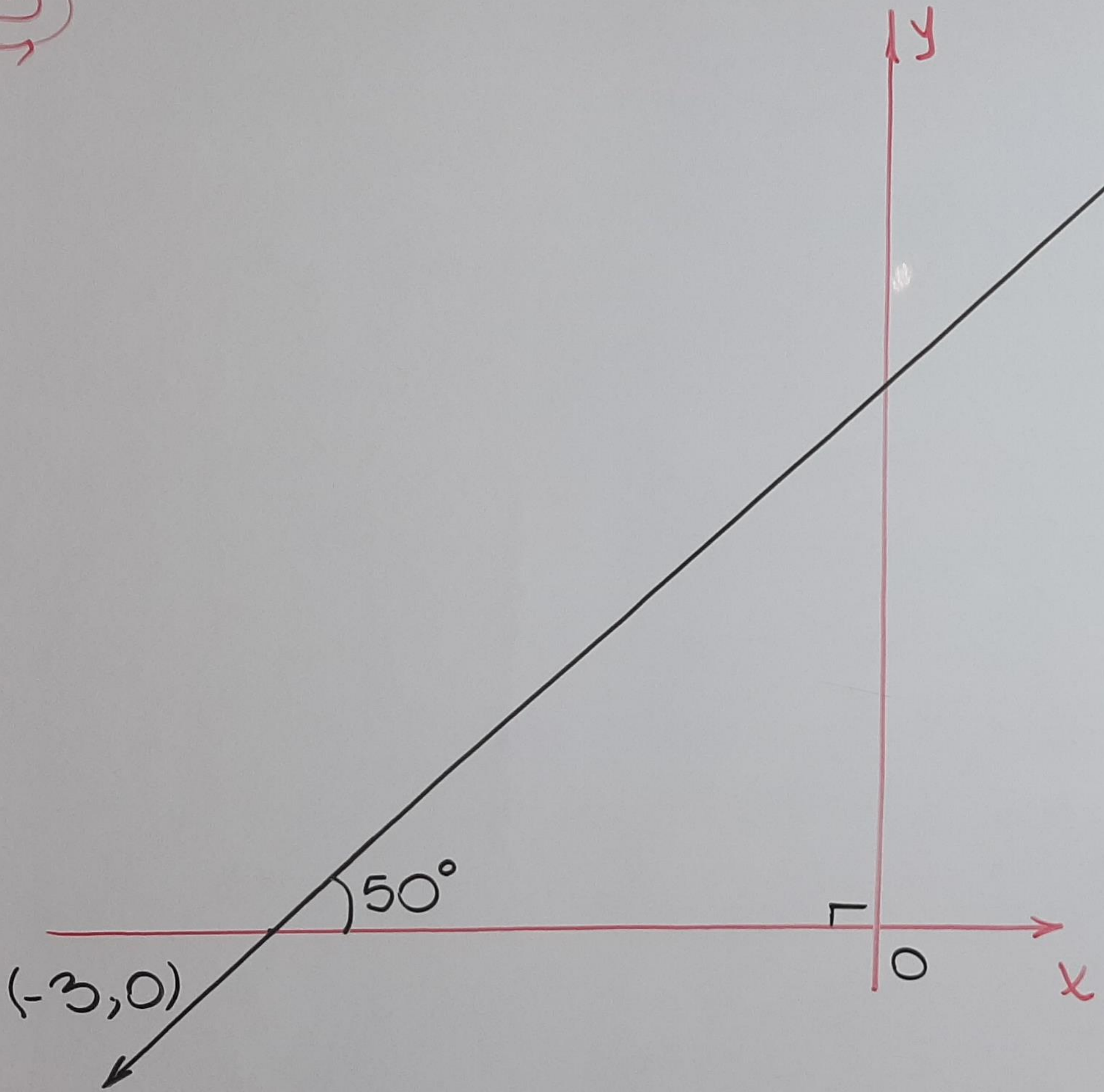


i) $m = \cot 40^\circ$

$\tan\theta = \cot 40^\circ$

$\theta = 50^\circ$

3

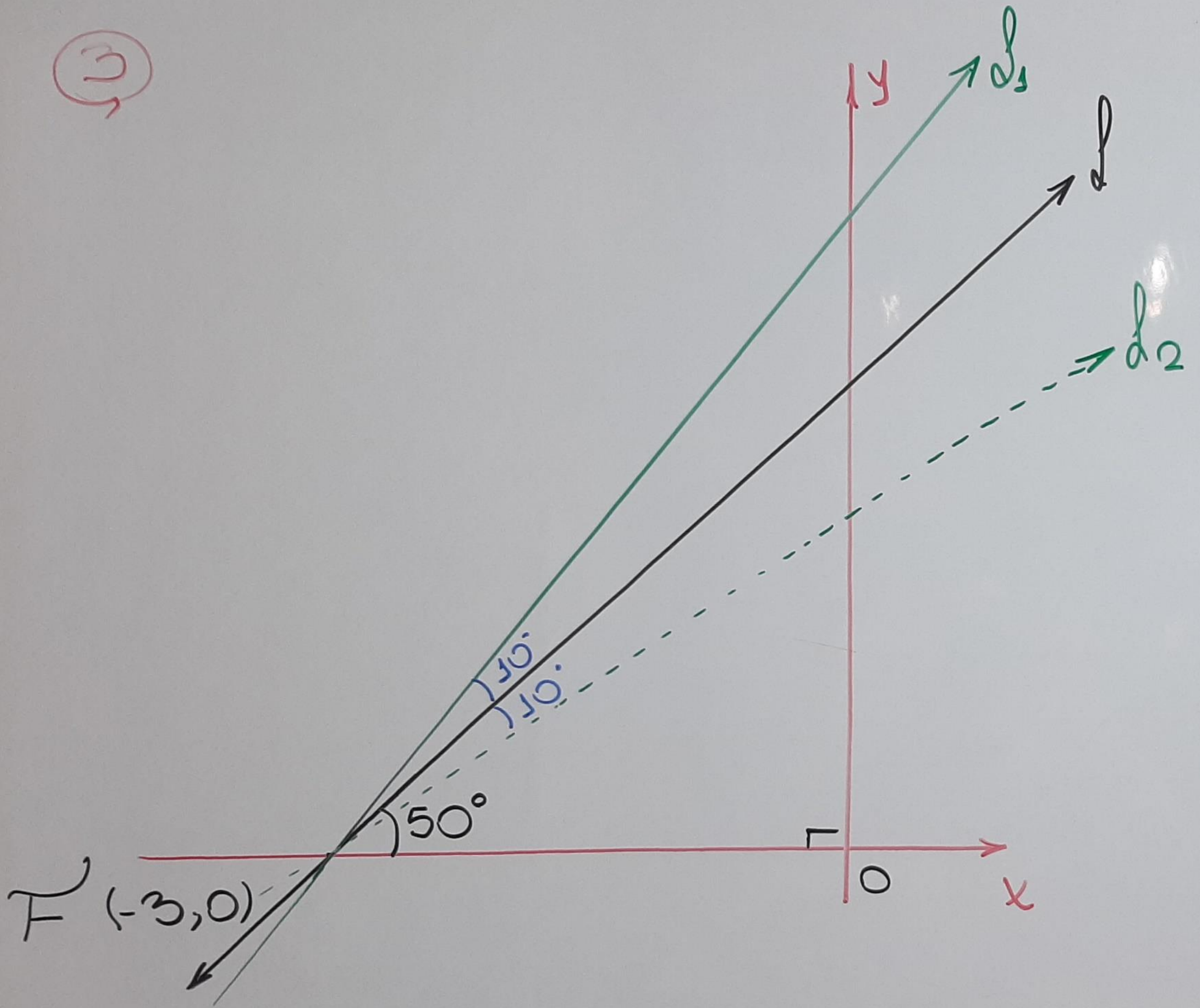


i) $m = \cot 40°$

$\tan\theta = \cot 40°$

$\theta = 50°$

③

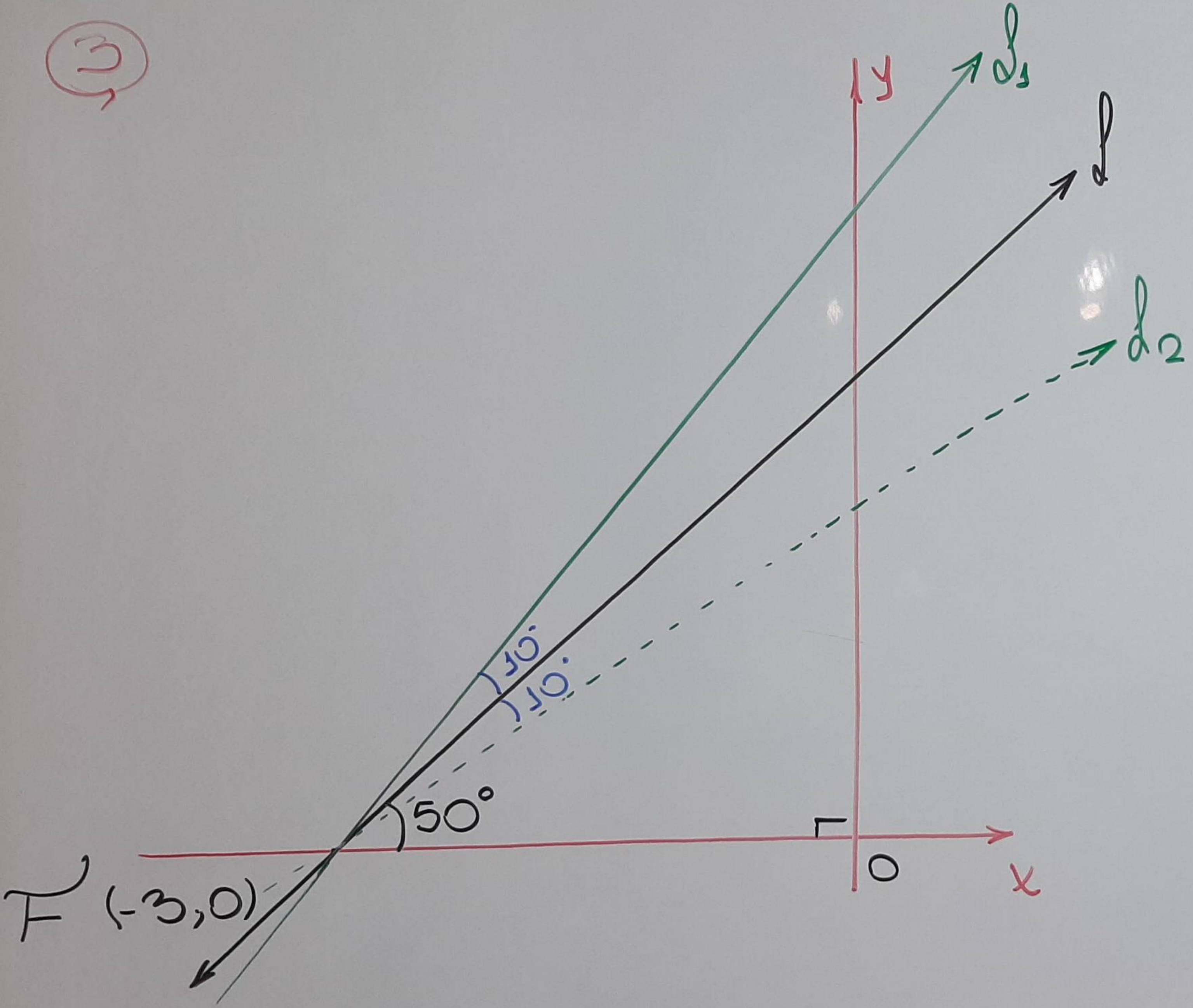


i) $m = \cot 40°$

$\tan\theta = \cot 40°$

$\theta = 50°$

③



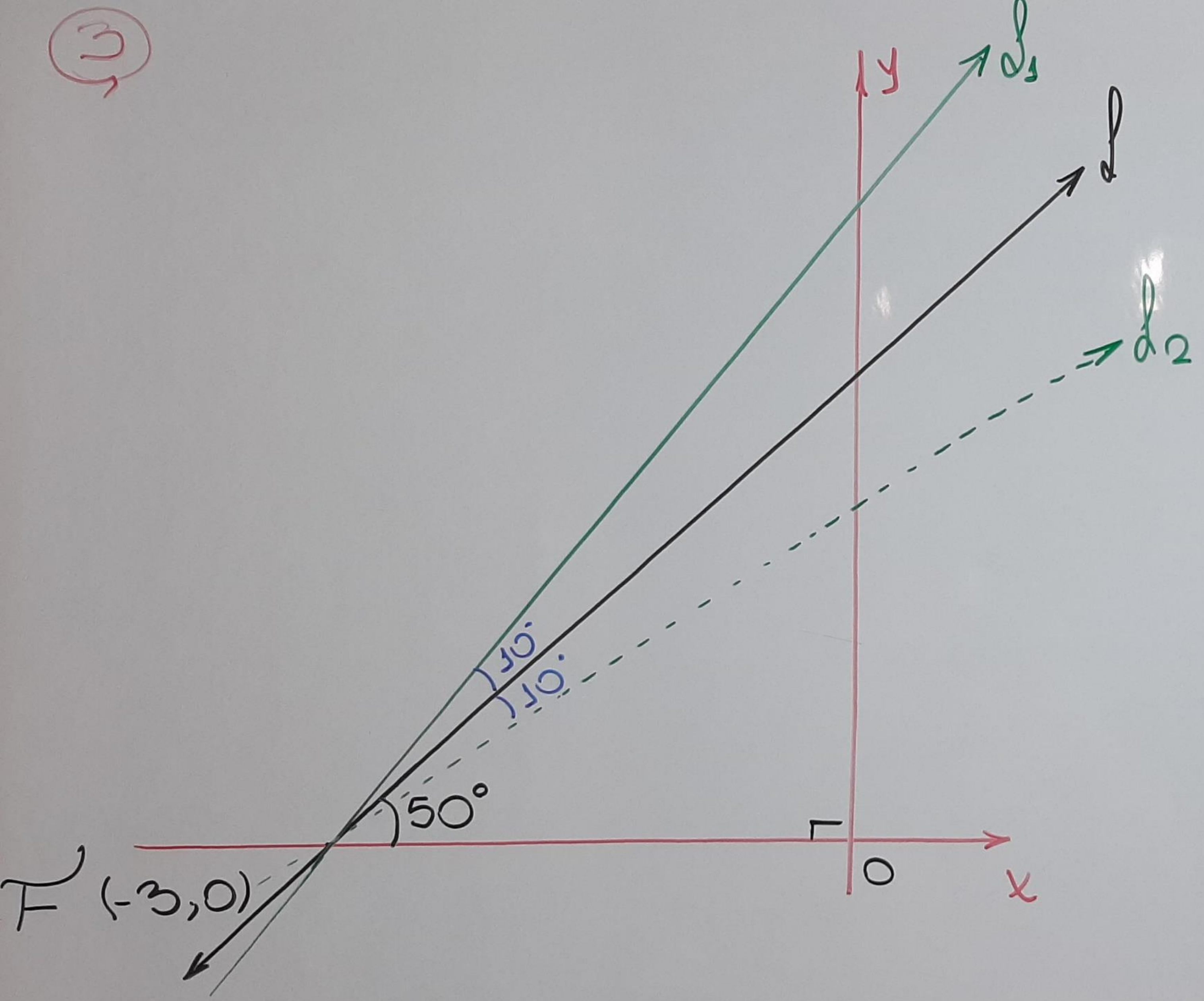
i) $m = \cot 40°$

$\tan\theta = \cot 40°$

$\theta = 50°$

$\measuredangle$ de inclinación $\begin{cases} \alpha_1 = 60° \\ \alpha_2 = 40° \end{cases}$

3



i) $m = \cot 40°$

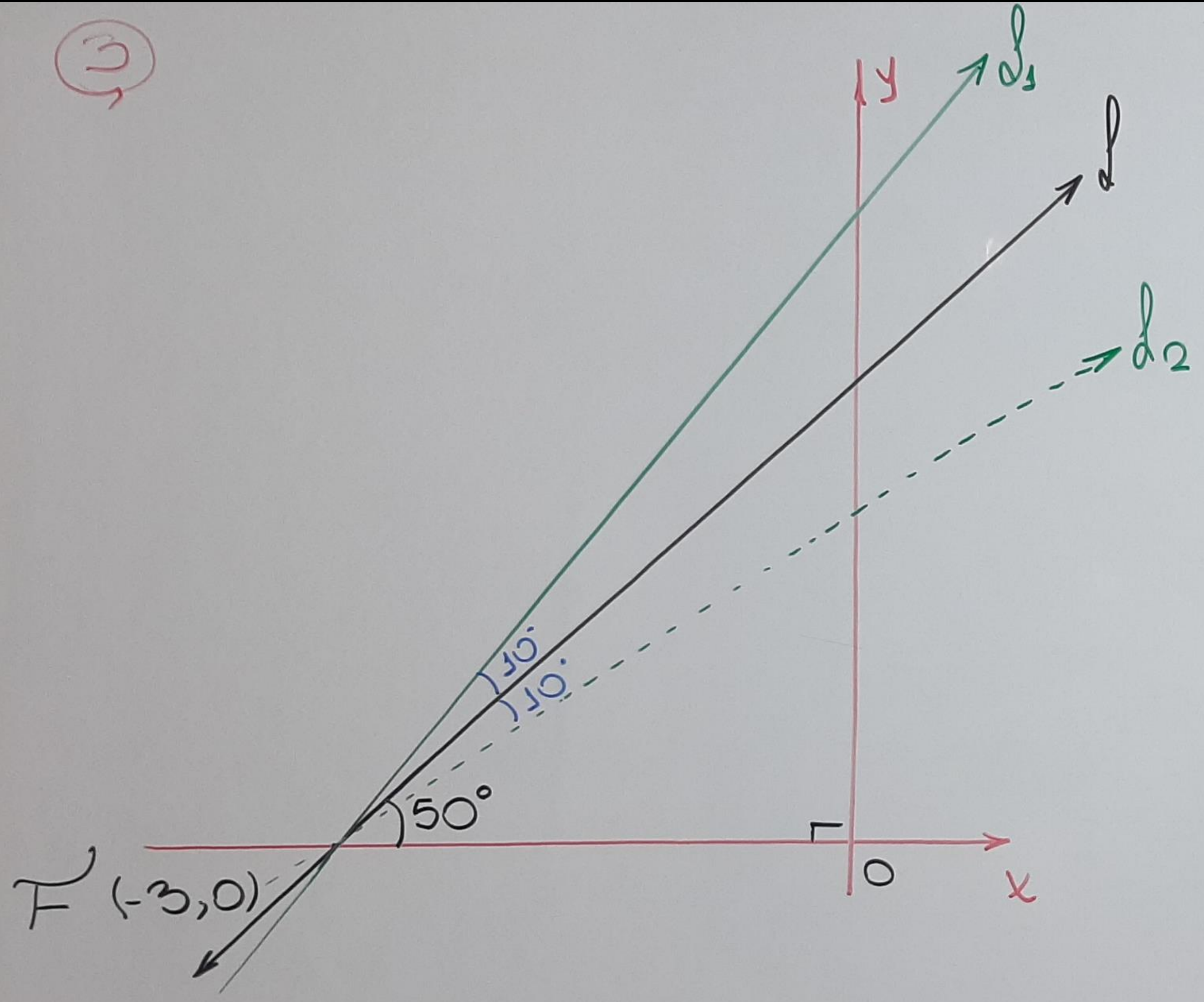
$\tan\theta = \cot 40°$

$\theta = 50°$

∡ de inclinación $\begin{cases} \alpha_1 = 60° \\ \alpha_2 = 40° \end{cases}$

$\mathcal{L}_1 \begin{cases} P(-3;\, 0) \\ m = \tan 60° = \sqrt{3} \end{cases}$

③



i) $m = \cot 40°$

$\tan\theta = \cot 40°$

$\theta = 50°$

$\measuredangle$ de inclinación $\begin{cases} \alpha_1 = 60° \\ \alpha_2 = 40° \end{cases}$

$\ell_1 \begin{cases} P(-3;\ 0) \\ m = \tan 60° = \sqrt{3} \end{cases}$

$y - y_0 = m(x - x_0)$

$y - 0 = \sqrt{3}(x - (-3))$

$y = \sqrt{3}x + 3\sqrt{3}$

CLAVE "B"

Problema 4:

En ángulo de inclinación de una recta es 135° y su distancia al origen es 3.Hallar la ecuación de la recta, sabiendo que no pasa por el IC.

A) $x + y - 3\sqrt{2} = 0$

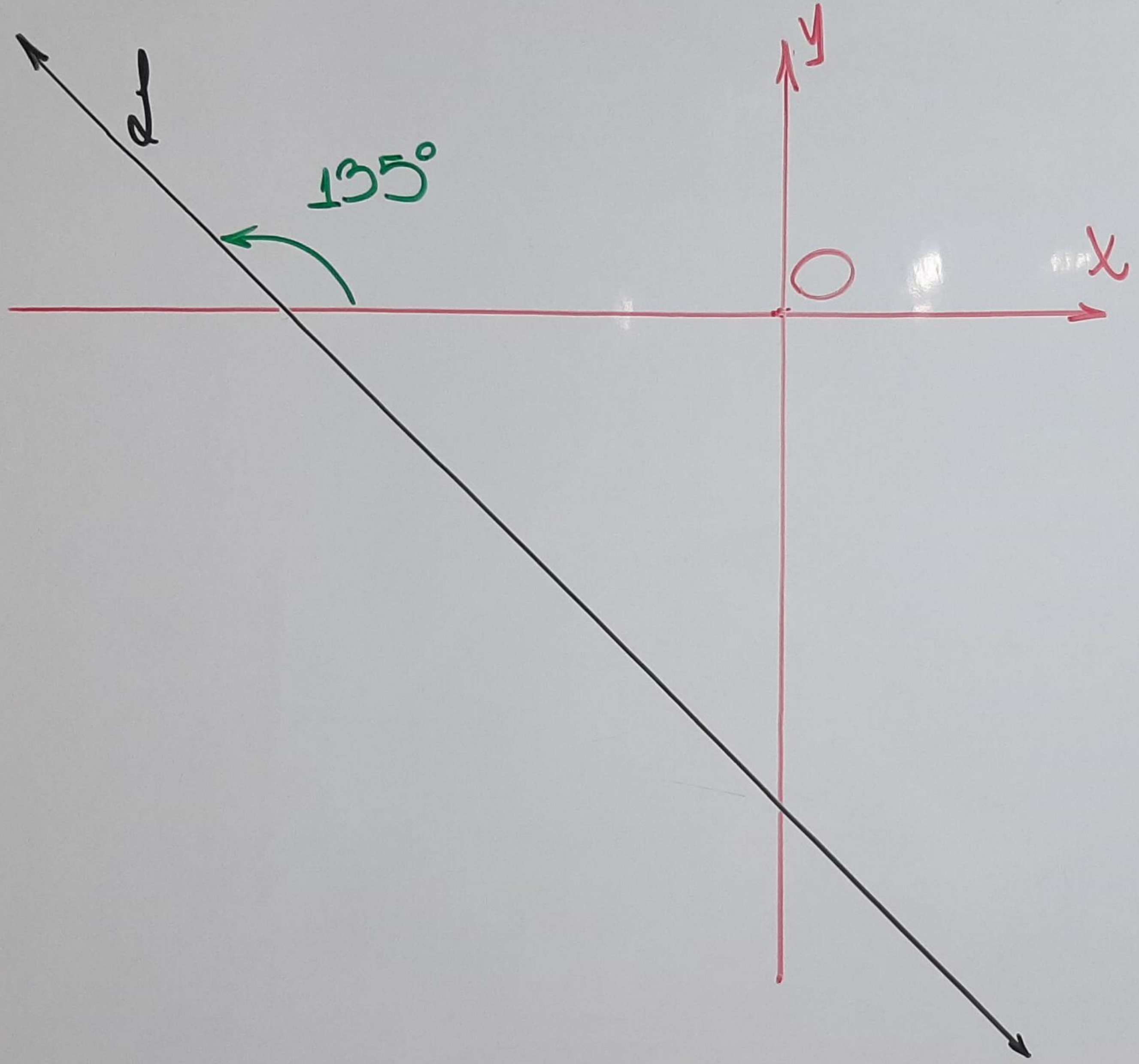
B) $x + y + 3\sqrt{2} = 0$

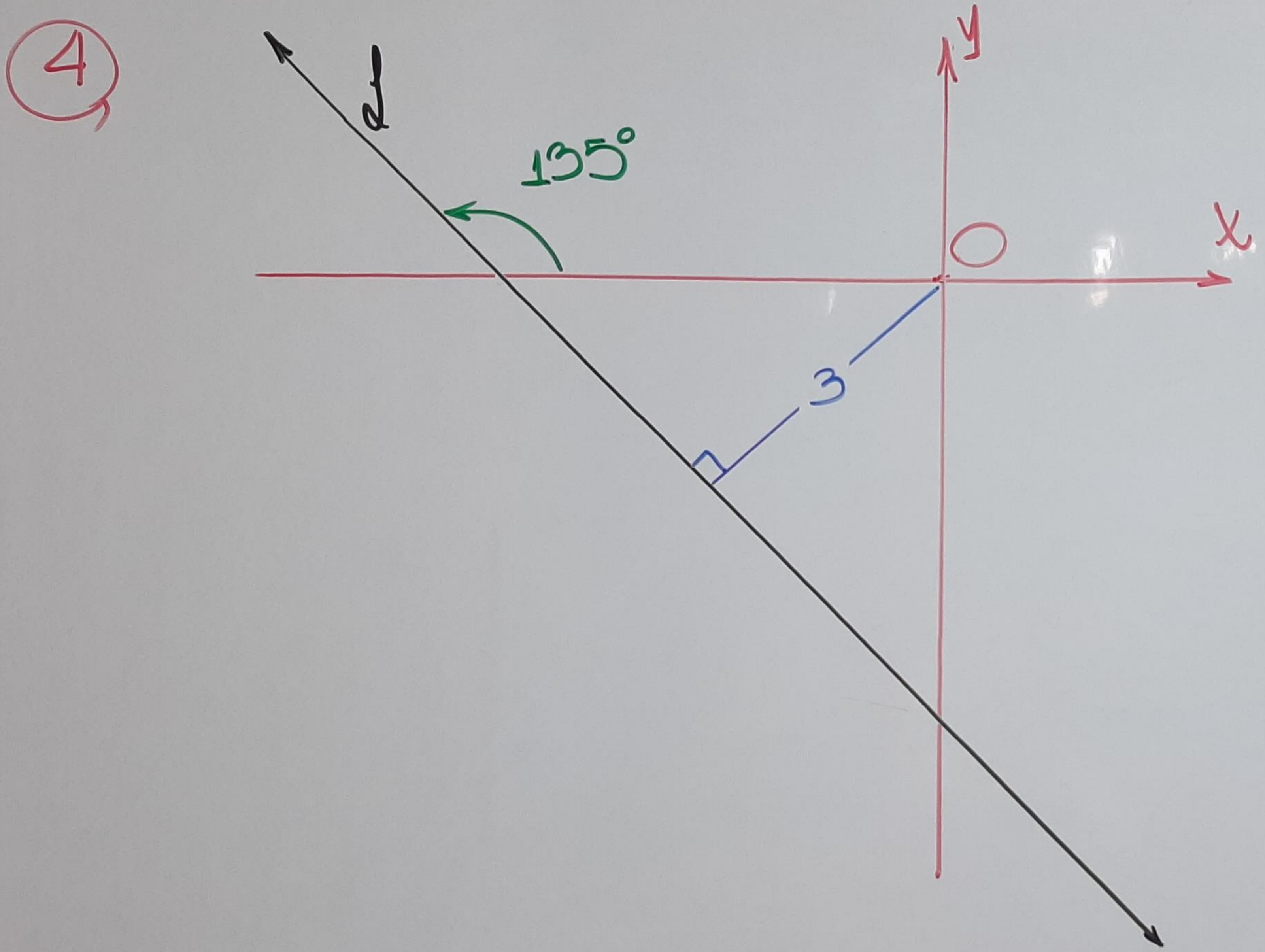
C) $\sqrt{2}x + y - 3 = 0$

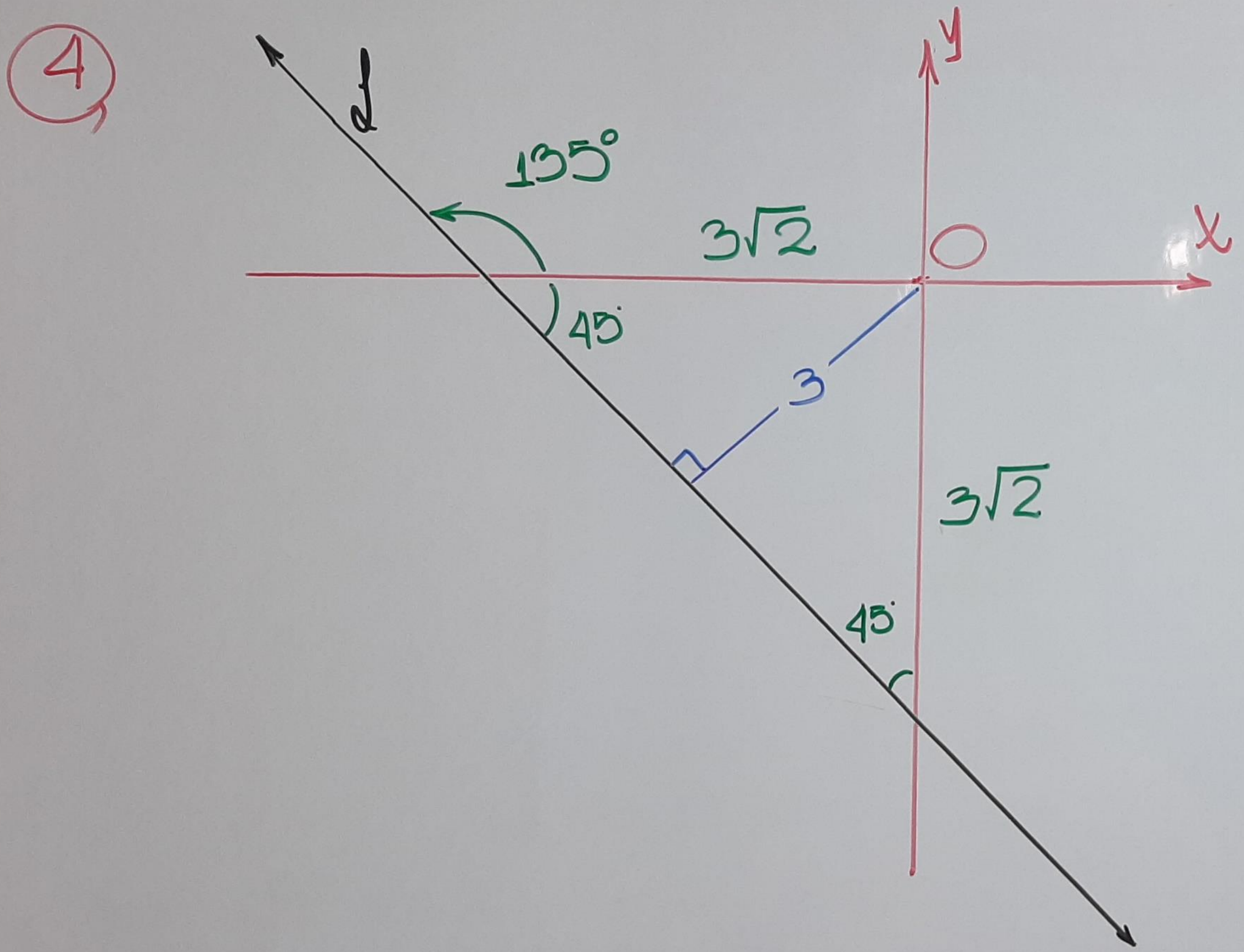
D) $\sqrt{2}x - y + 3 = 0$

E) $\sqrt{2}y - x - 3 = 0$

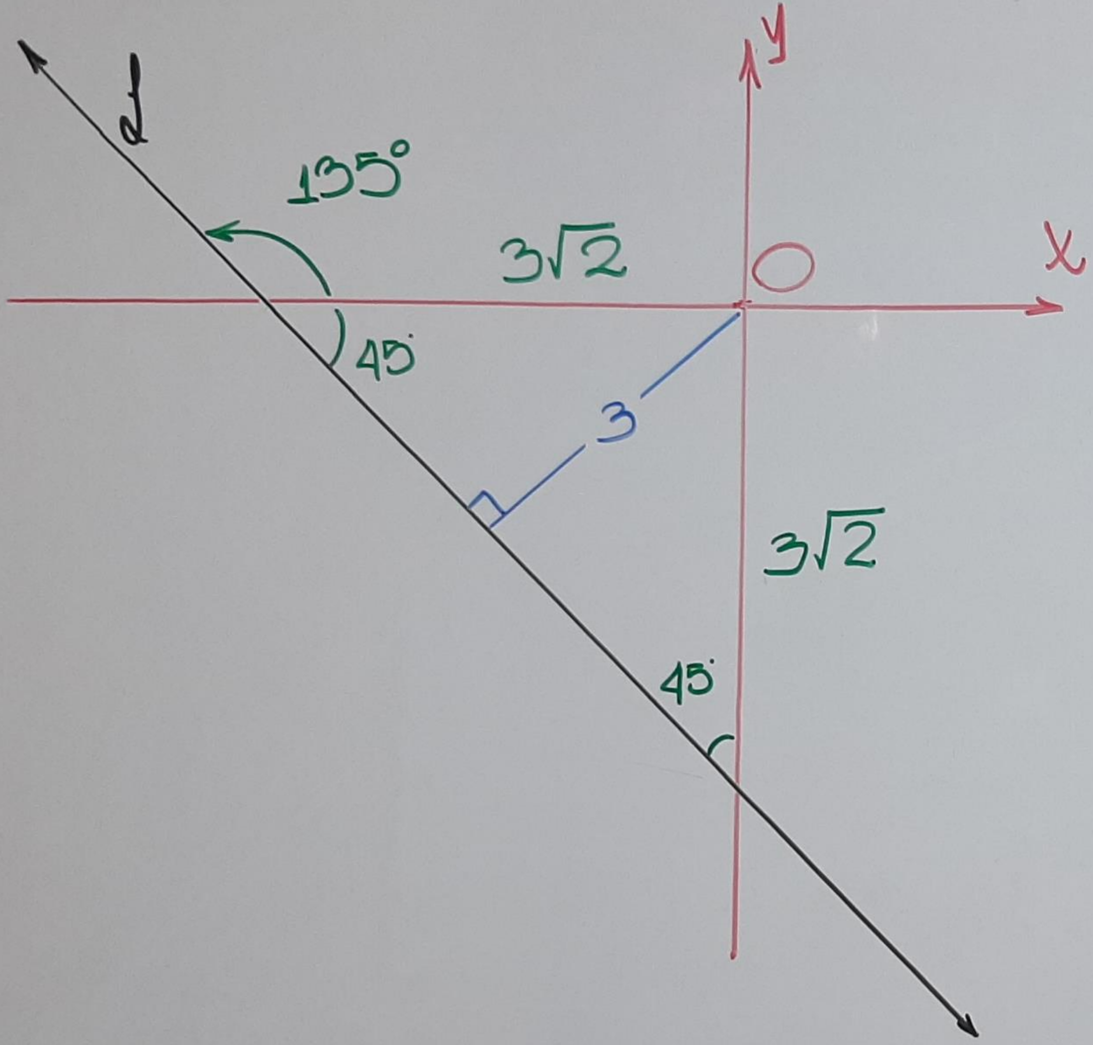
4




4
y
d
135°
x
O
3


4
l
y
x
O
135°
3√2
45°
3
3√2
45°

4



$$\mathcal{L}: \frac{x}{a} + \frac{y}{b} = 1$$

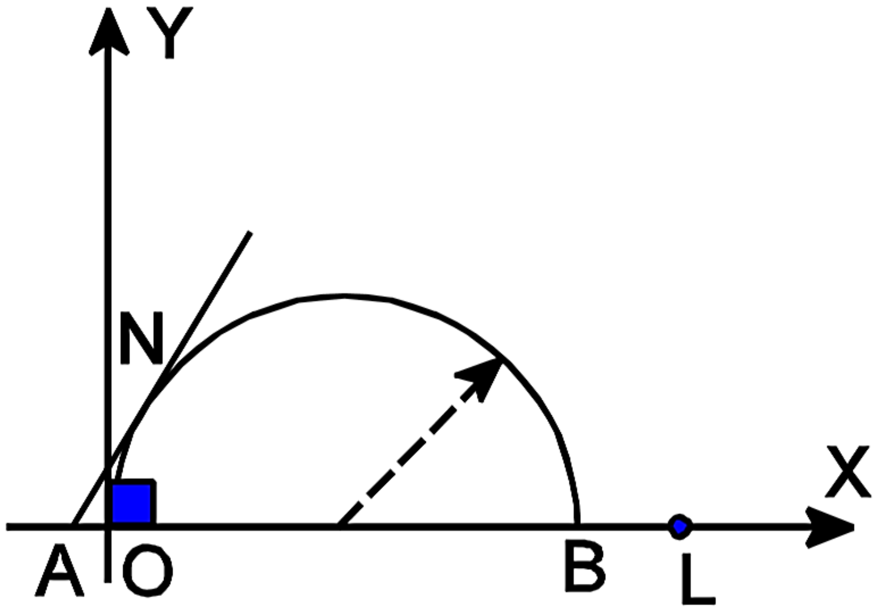
$$\mathcal{L}: \frac{x}{-3\sqrt{2}} + \frac{y}{-3\sqrt{2}} = 1$$

$$\therefore \mathcal{L}: x + y + 3\sqrt{2} = 0$$

CLAVE B

Problema 5:

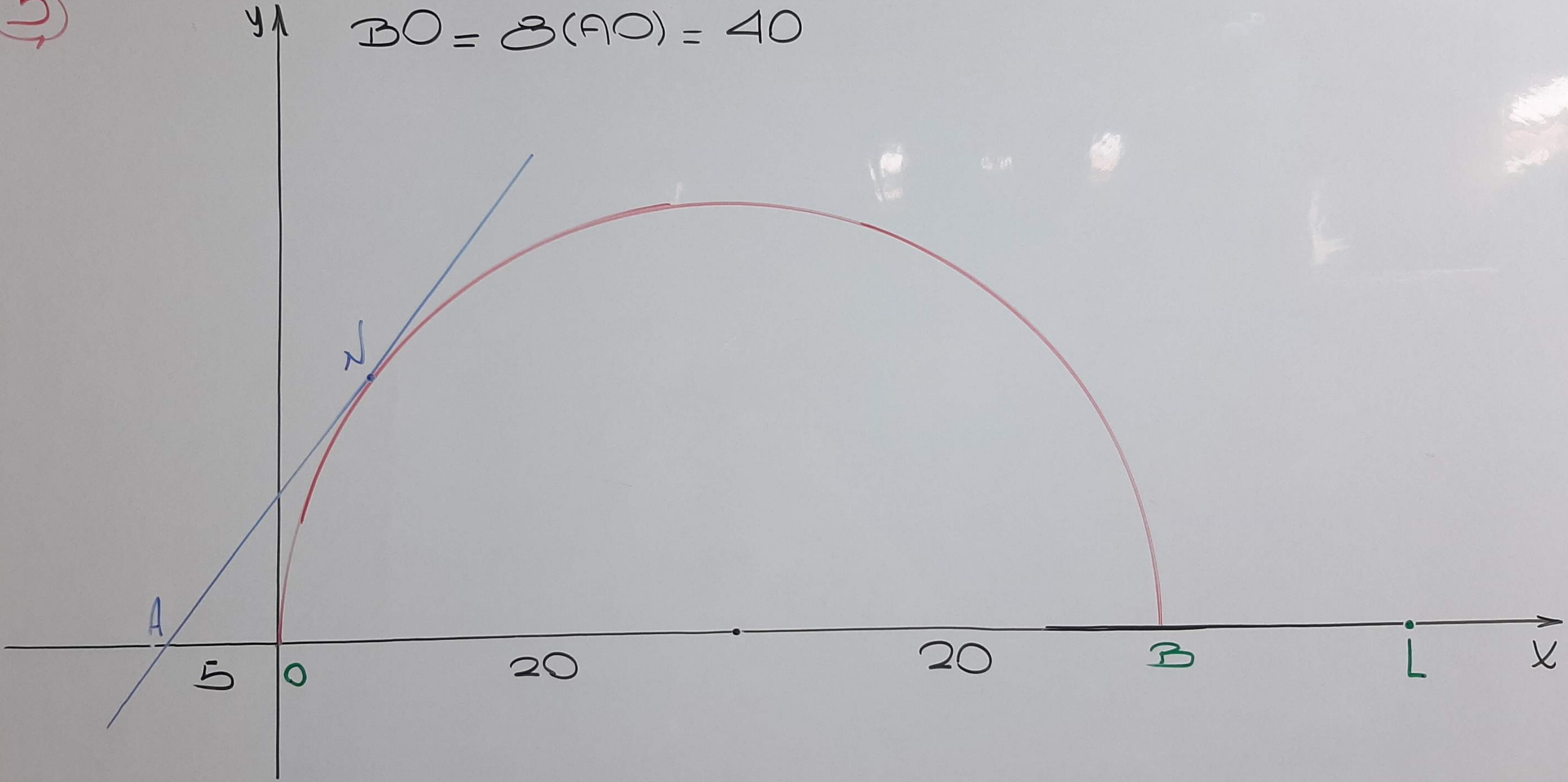
Según la figura: N es un punto de tangencia, BO=8(AO)=40 u y la longitud de $\overline{BL}$ es igual a la ordenada del punto N. Calcular la medida del ángulo de inclinación de la recta que contiene a los puntos N y L.



A) 150° B) 166° C) 127°
D) 143° E) 164°

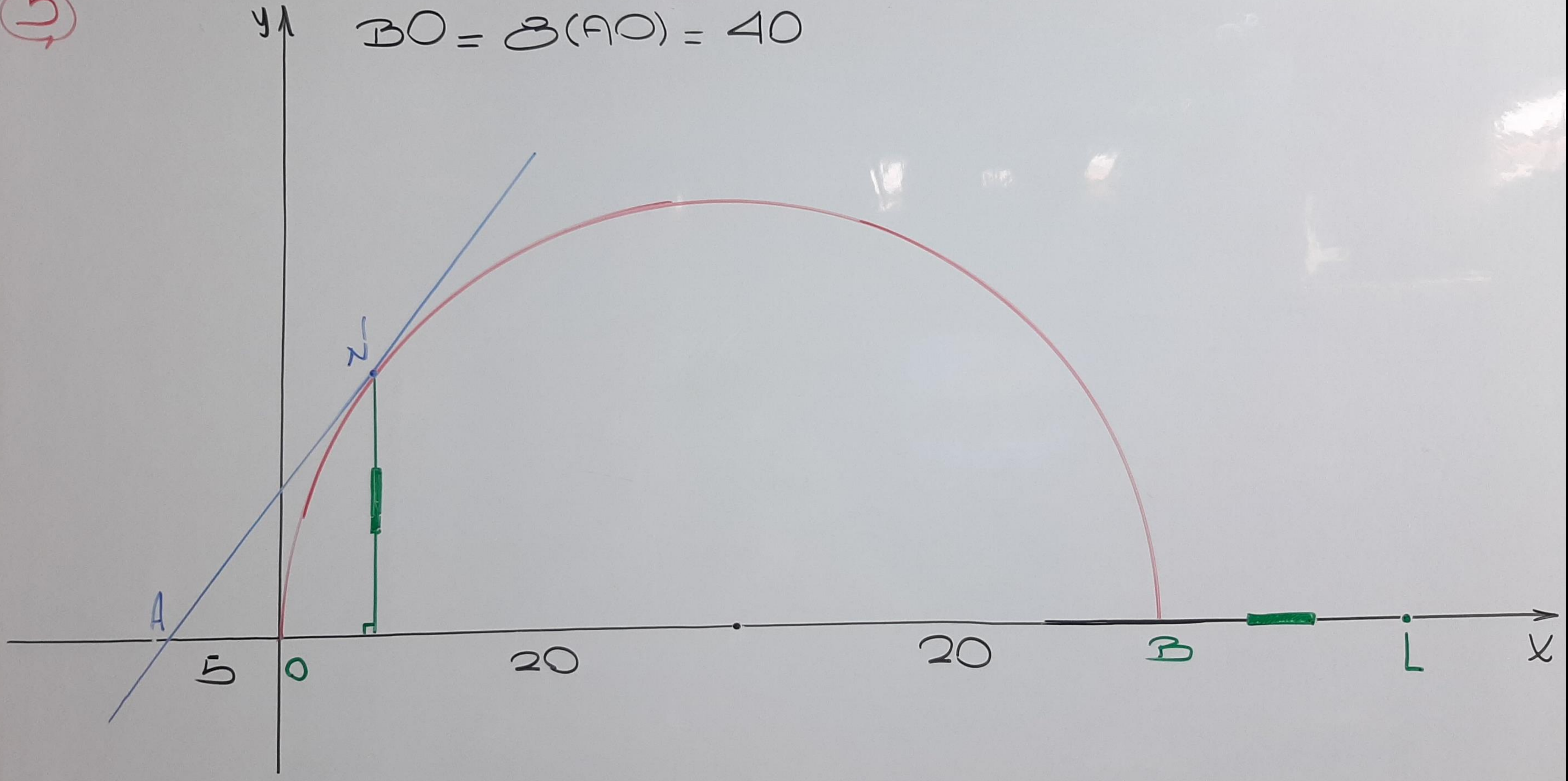
5

$BO = 8(AO) = 40$



5

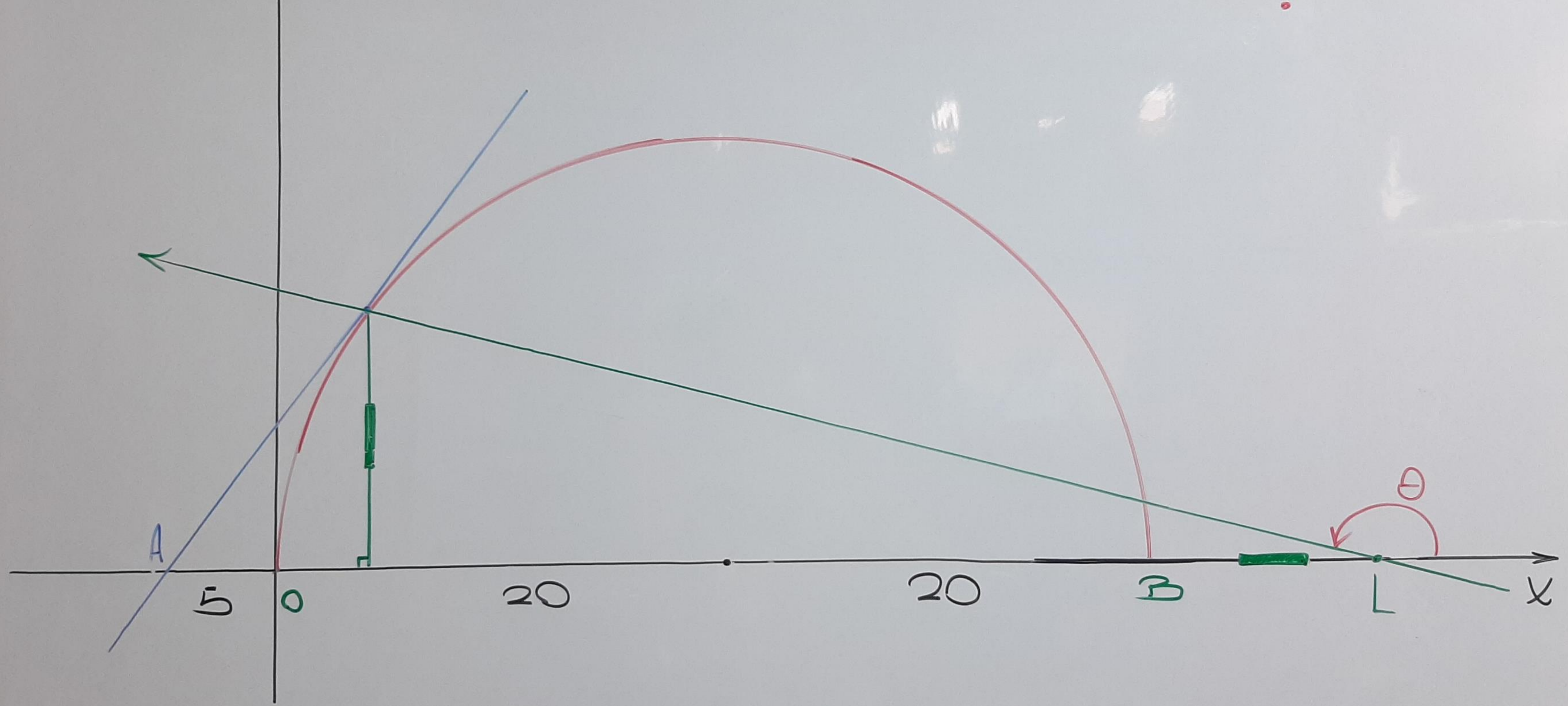
$BO = 8(AO) = 40$



5

$BO = 8(AO) = 40$

$\theta = ?$

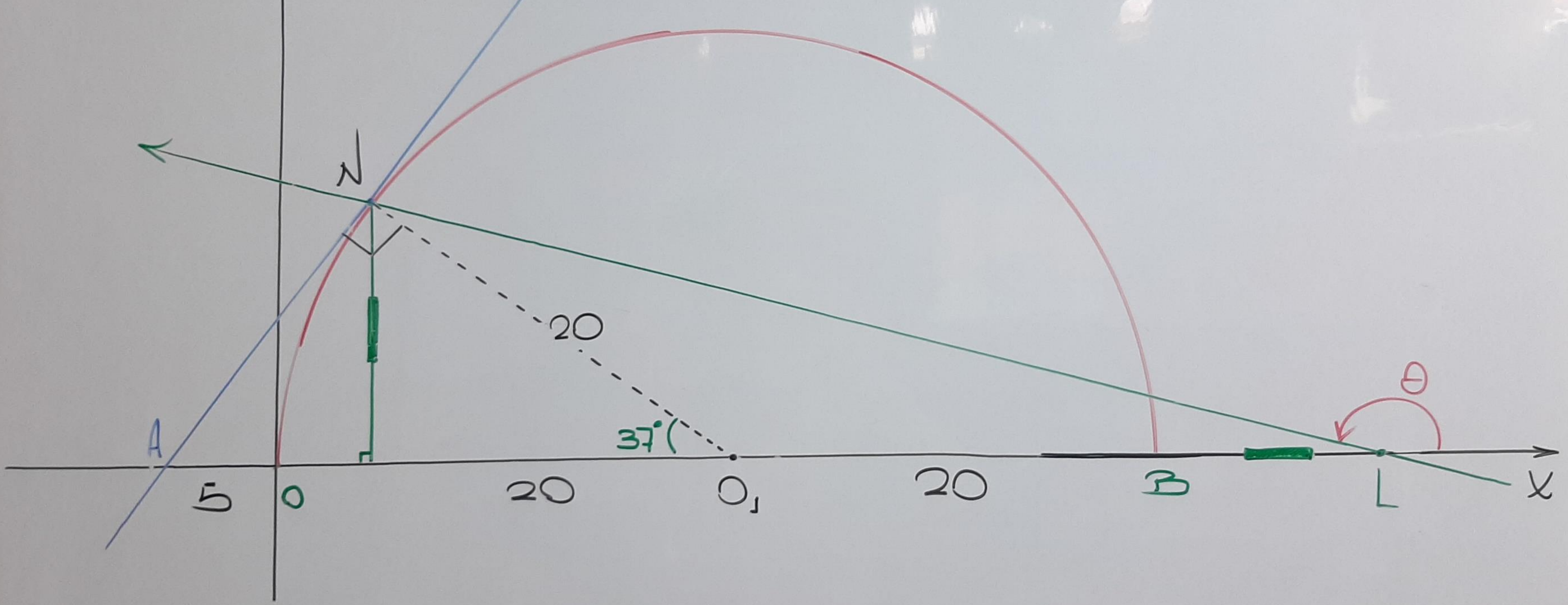


5

$BO = 8(AO) = 40$

$\theta = ?$

✓ Se traza: $\overline{O_1N} \rightarrow \measuredangle NO_1O = 37^\circ$

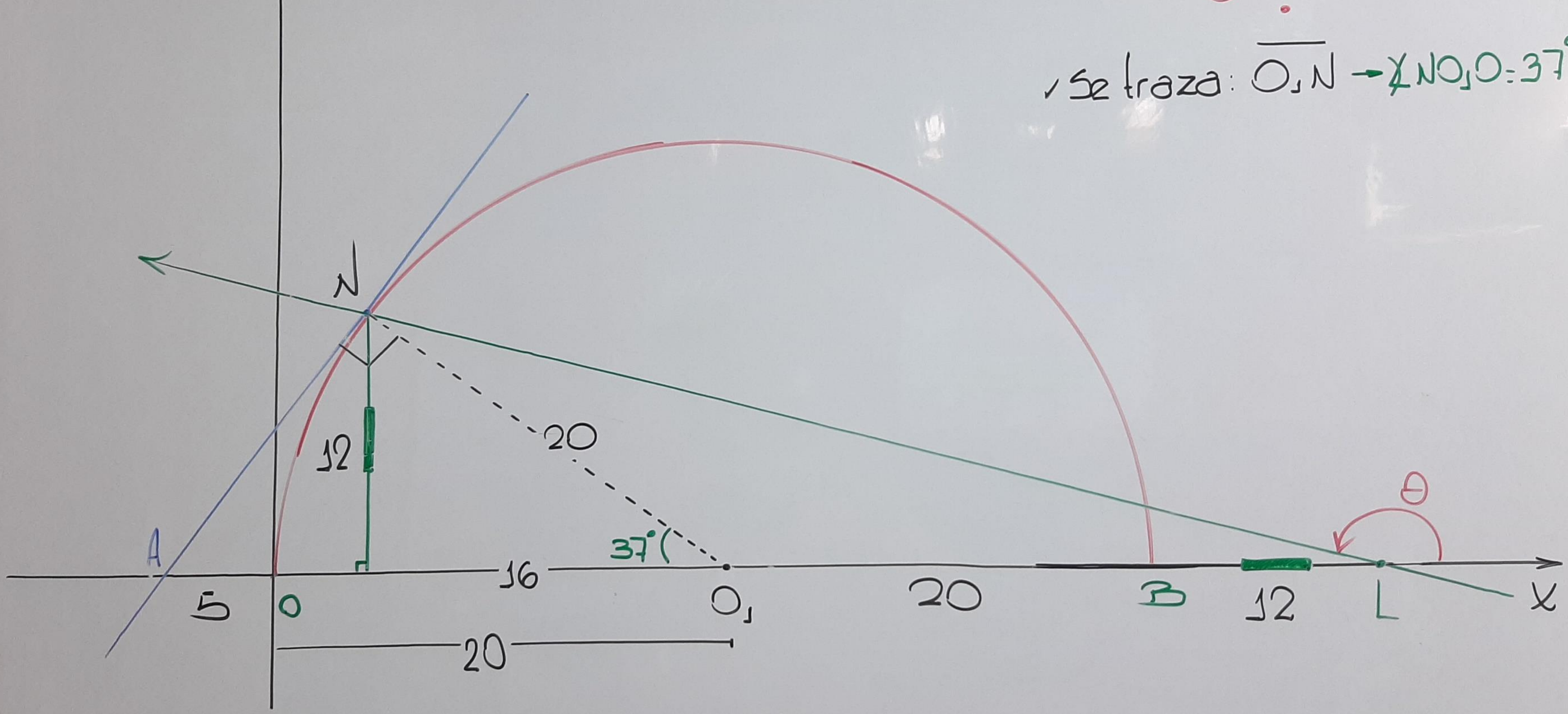


5

$BO = 8(AO) = 40$

$\theta = ?$

✓ Se traza: $\overline{O_1N} \rightarrow \measuredangle NO_1O = 37^\circ$



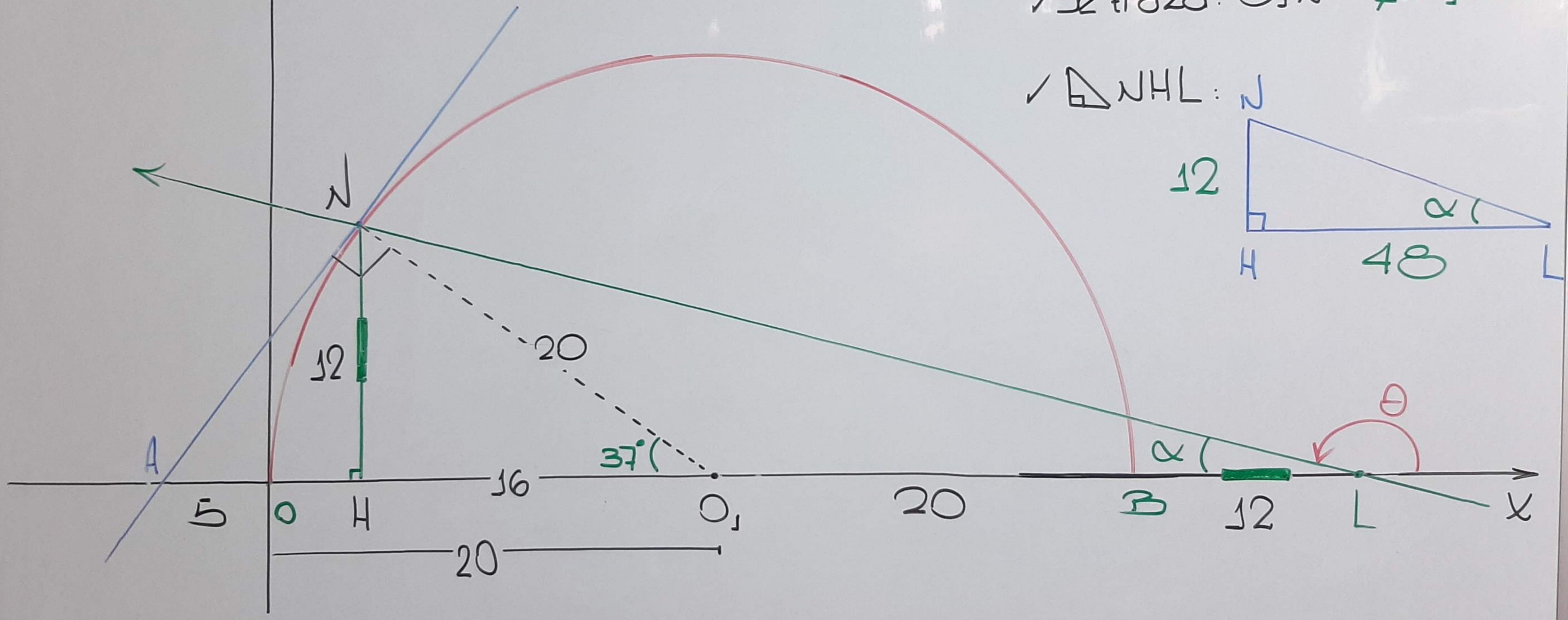
5

$BO = 8(AO) = 40$

$\theta = ?$

✓ Se traza: $\overline{O_1N} \rightarrow \measuredangle NO_1O = 37^\circ$

✓ $\triangle NHL$:



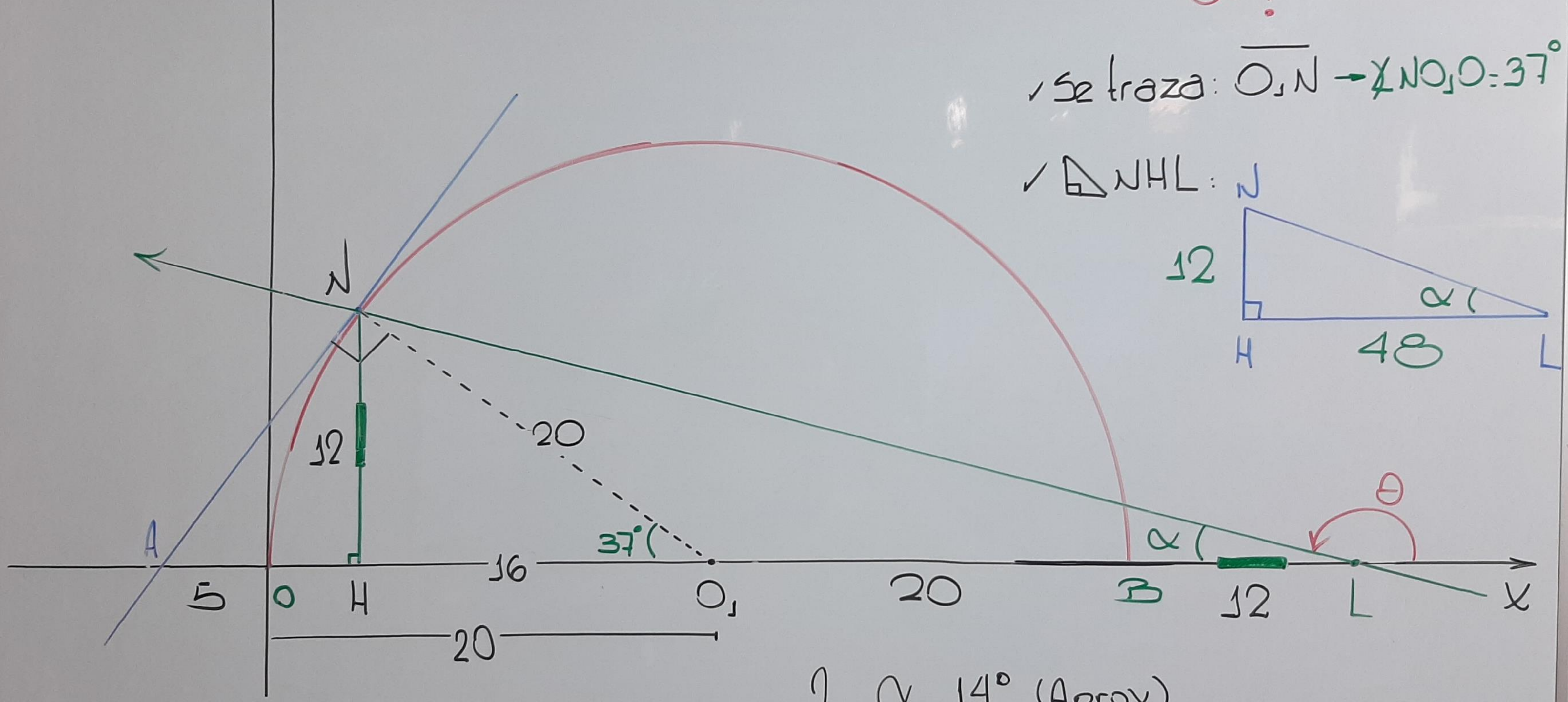
5

$BO = 8(AO) = 40$

$\theta = ?$

✓ Se traza: $\overline{O_1N} \rightarrow \measuredangle NO_1O = 37°$

✓ ◺NHL:



$\rightarrow \alpha = 14°$ (Aprox)

$\therefore \theta = 166°$ (Aprox)

CLAVE B

Problema 6:

Determinar los valores de k_1 y k_2 para que las dos ecuaciones: $k_1x - 7y + 18 = 0 \quad \wedge$ $8x - k_2y + 9k_1 = 0$ representen la misma recta. Calcular: $|k_1| + |k_2|$

A) 18 B) 14 C) 16

D) 20 E) 24

$\mathscr{L}_1: K_1x - 7y + 18 = 0 \wedge \mathscr{L}_2: 8x - K_2y + 9K_1 = 0$

"$\mathscr{L}_1 \wedge \mathscr{L}_2$: Rectas Coincidentes"

$$\frac{K_1}{8} = \frac{-7}{-K_2} = \frac{18}{9K_1}$$

$$\mathcal{L}_1: K_1x - 7y + 18 = 0 \ \wedge \ \mathcal{L}_2: 8x - K_2y + 9K_1 = 0$$

" $\mathcal{L}_1 \wedge \mathcal{L}_2$: Rectas Coincidentes "

$$\frac{K_1}{8} = \frac{-7}{-K_2} = \frac{18}{9K_1}$$

$$(K_1)^2 = 2 \cdot 8$$

$$K_1 = \pm 4$$

$$\mathscr{L}_1 : K_1 x - 7y + 18 = 0 \;\wedge\; \mathscr{L}_2 : 8x - K_2 y + 9K_1 = 0$$

" $\mathscr{L}_1 \wedge \mathscr{L}_2$: Rectas Coincidentes "

$$\frac{K_1}{8} = \frac{-7}{-K_2} = \frac{18}{9K_1}$$

$$(K_1)^2 = 2 \cdot 8$$

$$K_1 = \pm 4$$

$$\frac{\pm 4}{8} = \frac{7}{K_2}$$

$$K_2 = \pm 14$$

$\mathcal{L}_1: K_1x - 7y + 18 = 0 \ \wedge \ \mathcal{L}_2: 8x - K_2y + 9K_1 = 0$

"$\mathcal{L}_1 \wedge \mathcal{L}_2$: Rectas Coincidentes"

$$\frac{K_1}{8} = \frac{-7}{-K_2} = \frac{18}{9K_1}$$

$$(K_1)^2 = 2 \cdot 8$$

$$K_1 = \pm 4$$

$$\frac{\pm 4}{8} = \frac{7}{K_2}$$

$$K_2 = \pm 14$$

$|K_1| + |K_2|$

$4 + 14$

$\underline{18}$

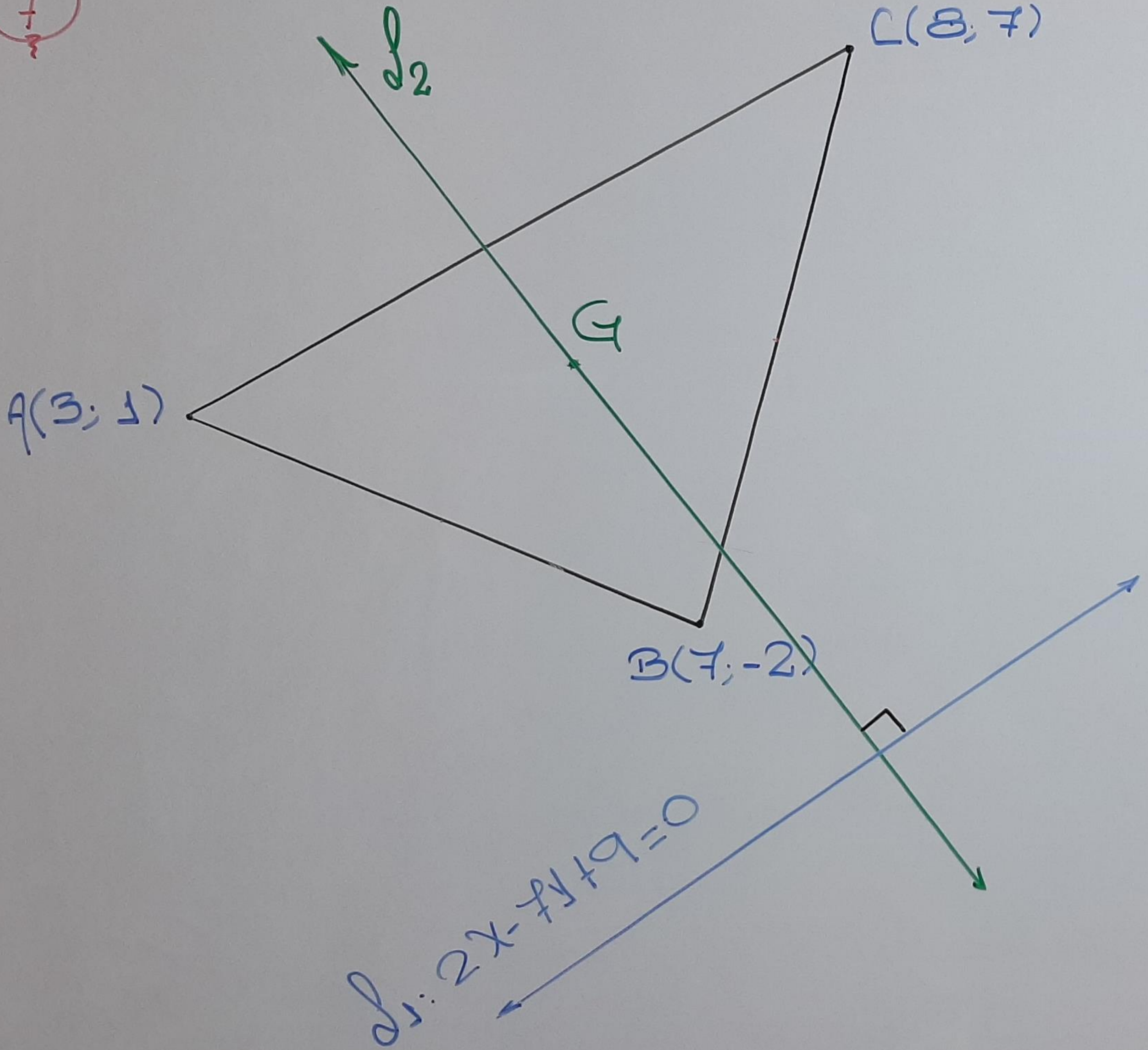
CLAVE A

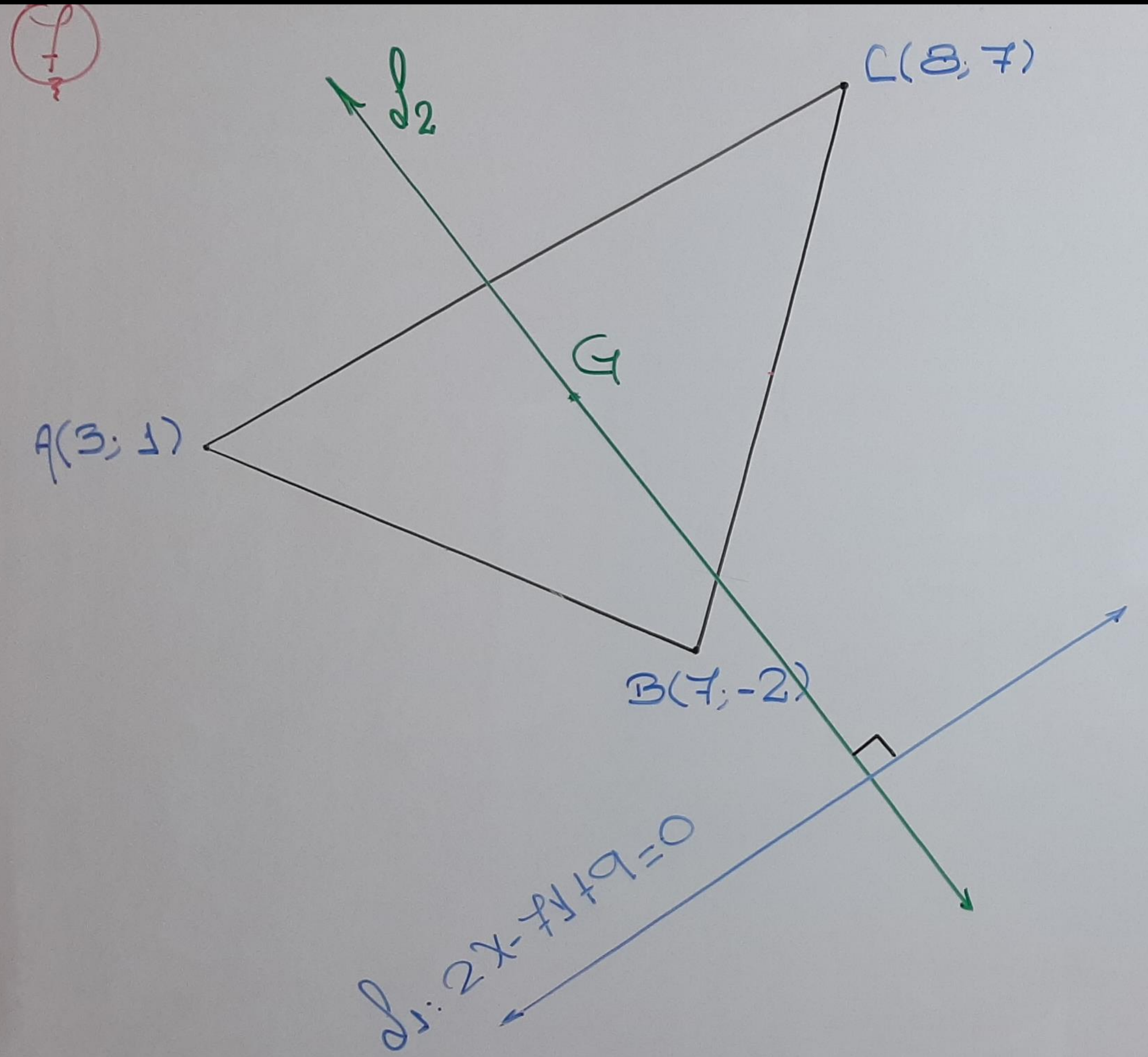
Problema 7:

Dada la recta $L_1: 2x - 7y + 9 = 0$, hallar la ecuación de L_2, sabiendo que es perpendicular a L_1 y pasa por el baricentro del triangulo ABC; A(3;1),B(7;-2) y C(8;7).

A) $7x + 2y - 46 = 0$
B) $2x + 7y - 42 = 0$
C) $7x - 2y - 36 = 0$
D) $2x - 7y - 41 = 0$
E) $x + 7y + 26 = 0$

7

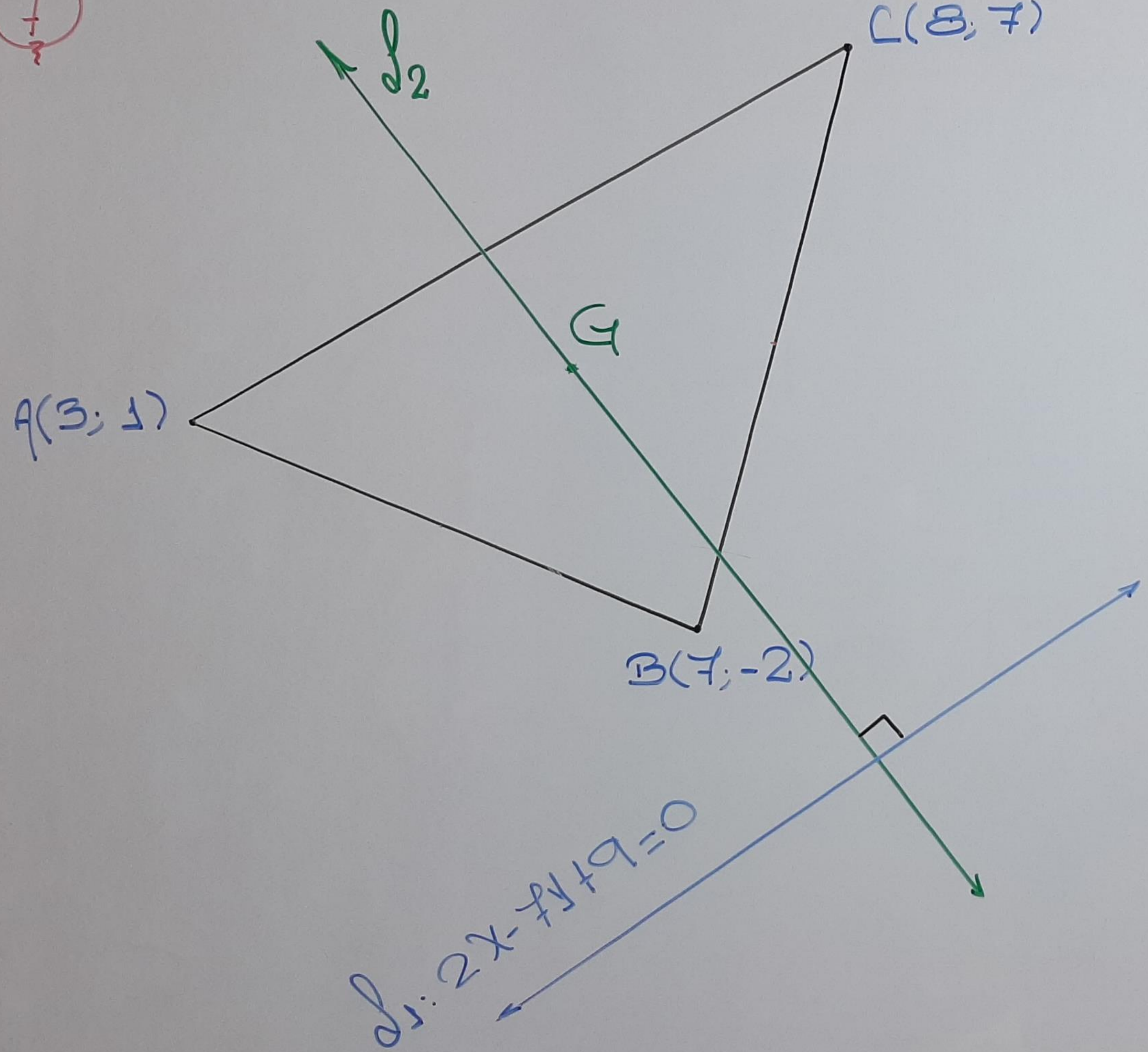




$$G\left(\frac{3+8+7}{3}\,;\,\frac{1+7-2}{3}\right)$$

$$G(\underset{x_0}{\underset{\downarrow}{6}}\,;\,\underset{y_0}{\underset{\downarrow}{2}})$$

7



$$G\left(\frac{3+8+7}{3};\frac{1+7-2}{3}\right)$$

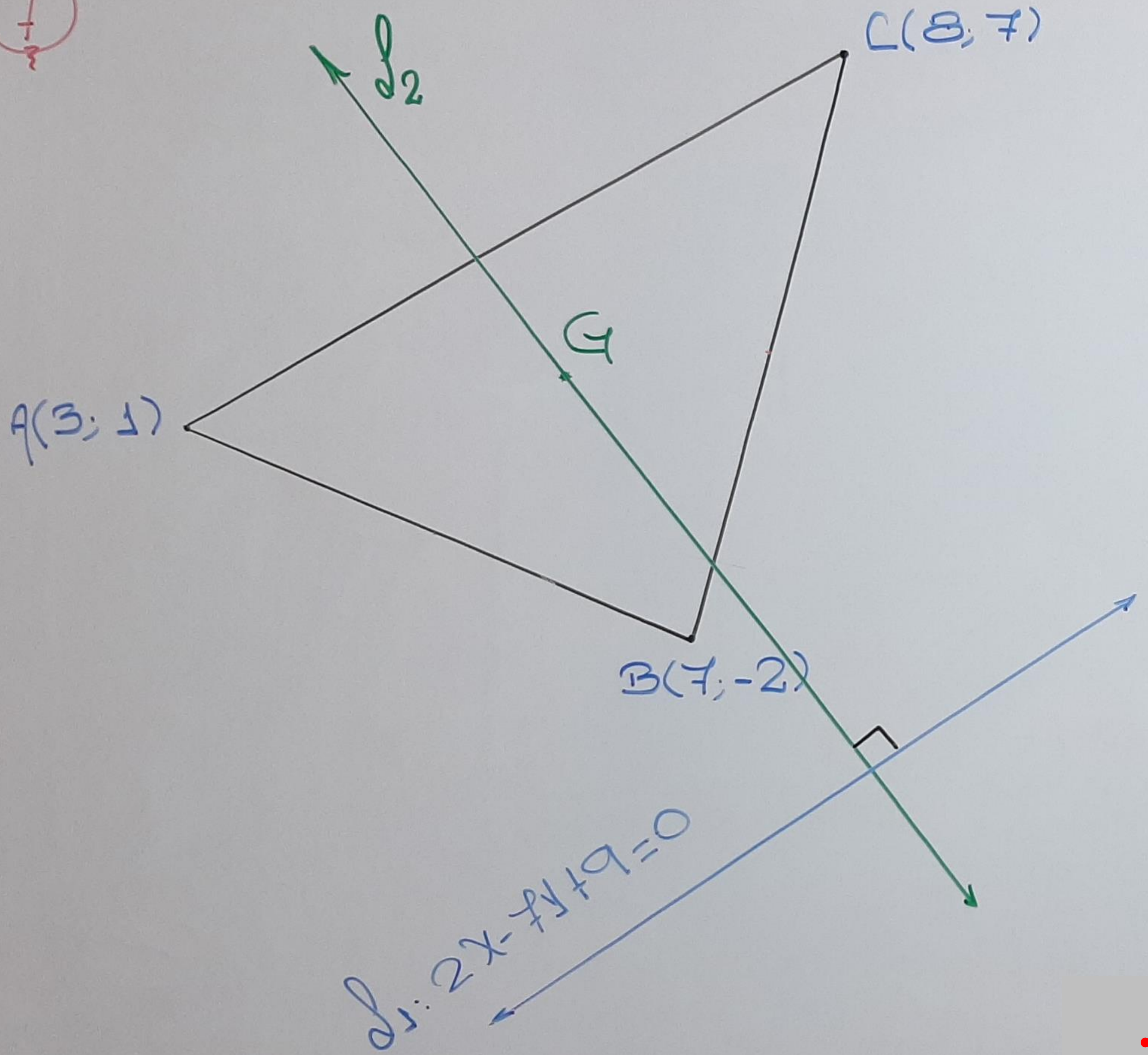
$$G(6;2)$$

$$x_0 \quad y_0$$

$$m_1 = -\frac{2}{-7} = \frac{2}{7}$$

$$d_1 \perp d_2 \rightarrow m_2 = -\frac{7}{2}$$

7



$$G\left(\frac{3+8+7}{3} ; \frac{1+7-2}{3}\right)$$

$$G(\underset{x_0}{6} ; \underset{y_0}{2})$$

$$m_1 = -\frac{2}{-7} = \frac{2}{7}$$

$$d_1 \perp d_2 \rightarrow m_2 = -\frac{7}{2}$$

$$y - y_0 = m(x - x_0)$$

$$y - 2 = -\frac{7}{2}(x - 6)$$

$$2y - 4 = -7x + 42$$

$$\therefore\ L_2 : 7x + 2y - 46$$

Problema 8:

Las ecuaciones de dos rectas son: $\mathrm{Ax}+\mathrm{By}+\mathrm{C}=0 \wedge \mathrm{A}'\mathrm{x}+\mathrm{B}'+\mathrm{C}'=0$. Determinar el valor de verdad de las siguientes proposiciones:

( ) Son paralelas $\Leftrightarrow \mathrm{AB}'-\mathrm{A}'\mathrm{B}=0$

( ) Son perpendiculares $\Leftrightarrow \mathrm{A}A'+\mathrm{BB}'=0$

( ) Son coincidentes $\Leftrightarrow \mathrm{A}=\mathrm{k}A'; B=\mathrm{kB}'\ y\ C=\mathrm{kC}'\ (k\neq 0)$

A) VVV

B) VFF

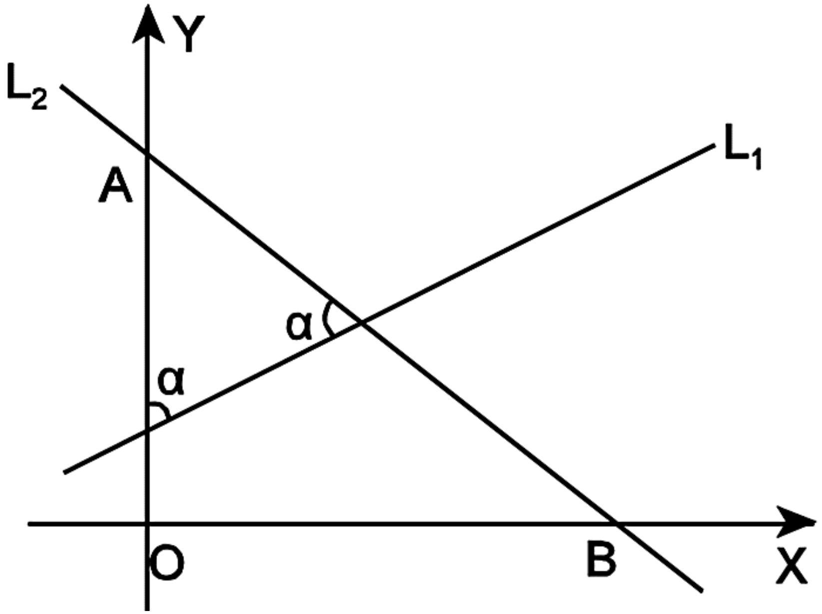
C) FVV

D) FVF

E) VVF

Problema 9:

En la figura la ecuación de L_1 es: $2x - 3y + 6 = 0$ y el perimetro del triangulo AOB es 60 u. Hallar la ecuación de L_2



A) $5x + 12y - 120 = 0$

B) $5x - 12y + 60 = 0$

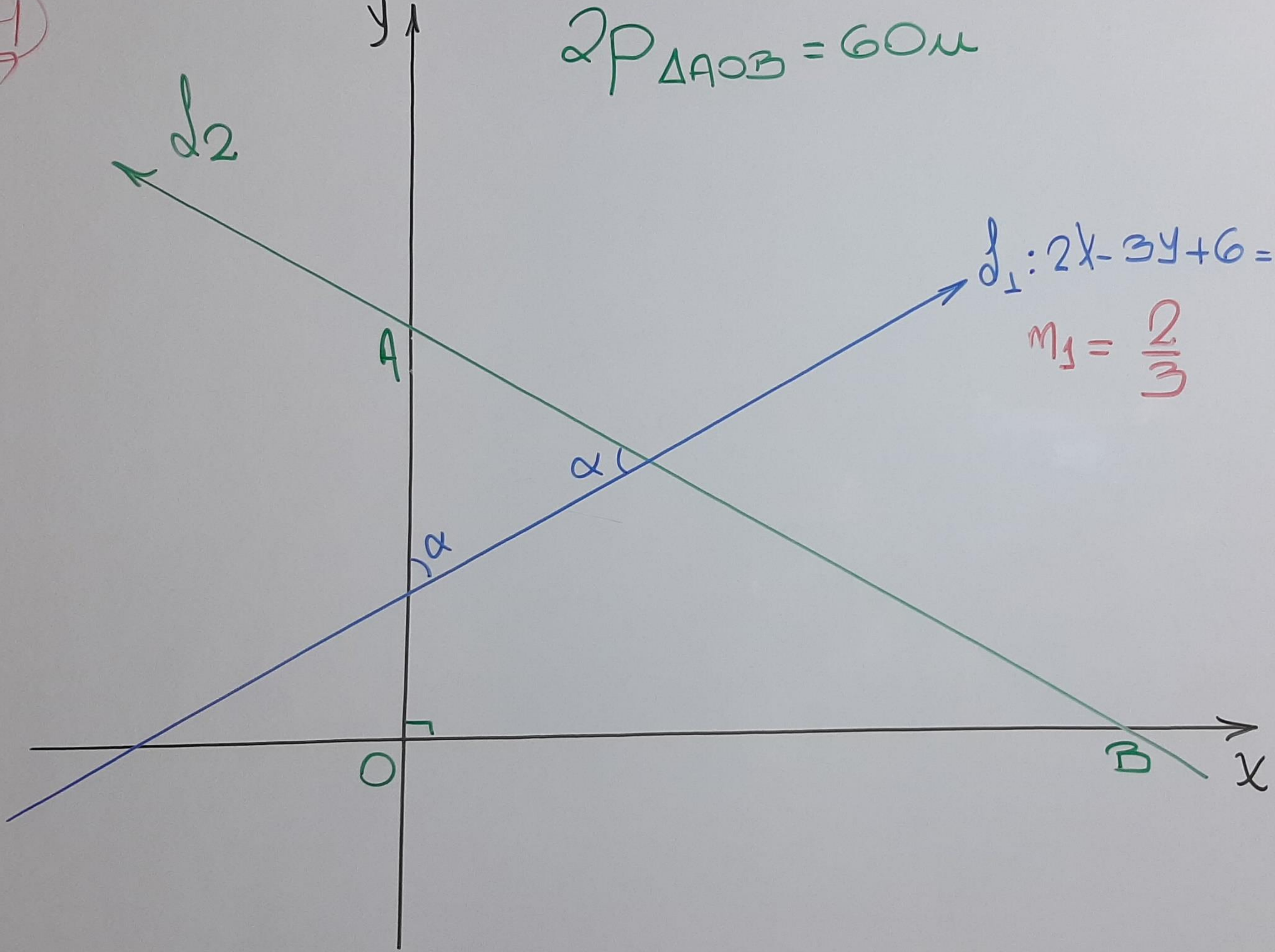
C) $4x + 3y + 40 = 0$

D) $4x + 3y - 30 = 0$

E) $3x + 2y - 10 = 0$

9

$2P_{\Delta AOB} = 60u$

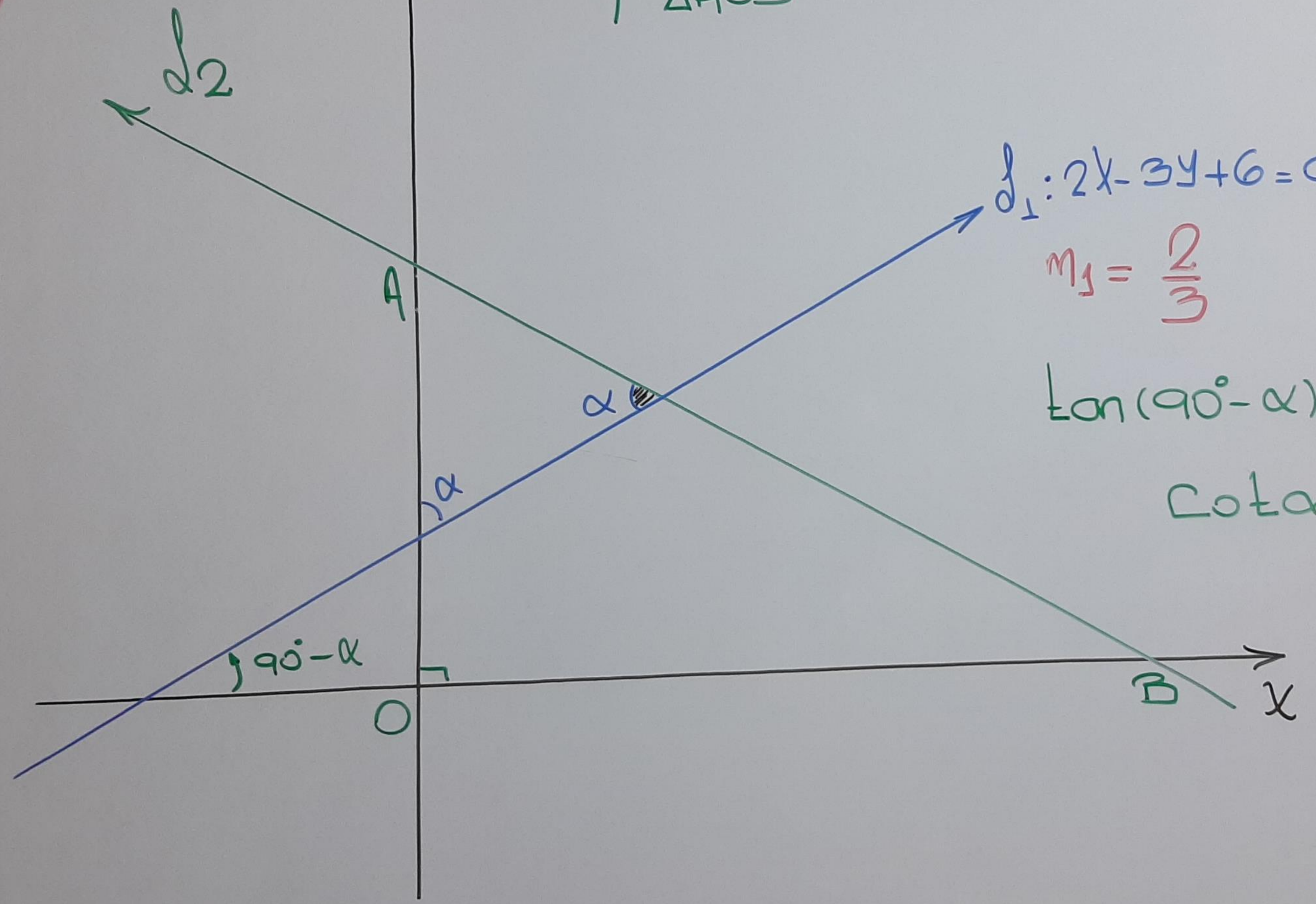


$d_1: 2x - 3y + 6 = 0$

$m_1 = \frac{2}{3}$

9

$2P_{\Delta AOB} = 60u$



$d_1: 2x - 3y + 6 = 0$

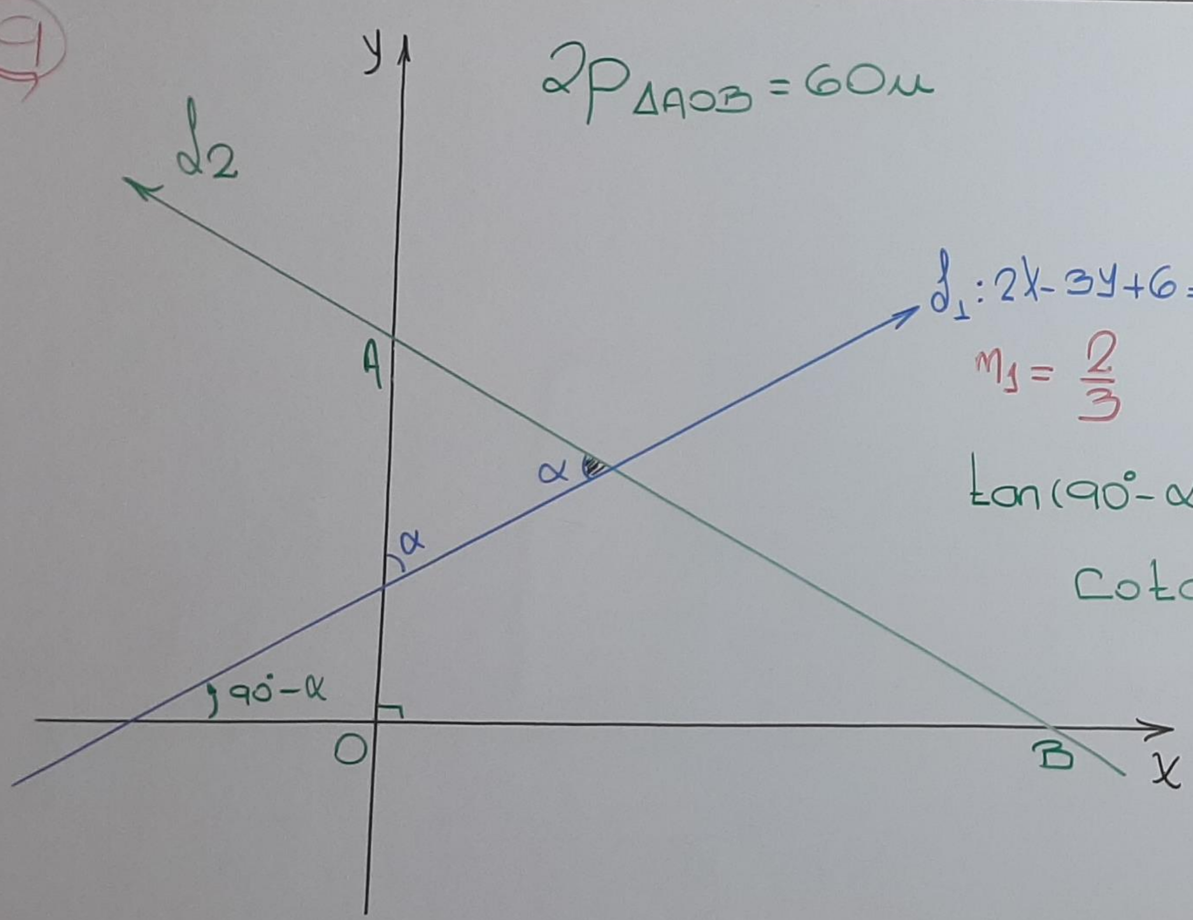
$m_1 = \frac{2}{3}$

$\tan(90° - \alpha) = \frac{2}{3}$

$\cot\alpha = \frac{2}{3}$

9

$2P_{\Delta AOB} = 60u$



$d_1: 2x - 3y + 6 = 0$

$m_1 = \frac{2}{3}$

$\tan(90° - \alpha) = \frac{2}{3}$

$\cot\alpha = \frac{2}{3}$

$$\tan\alpha = \left|\frac{m_2 - m_1}{1 + m_2 \cdot m_1}\right|$$

$$\frac{3}{2} = \left|\frac{m_2 - \frac{2}{3}}{1 + m_2 \cdot \frac{2}{3}}\right|$$

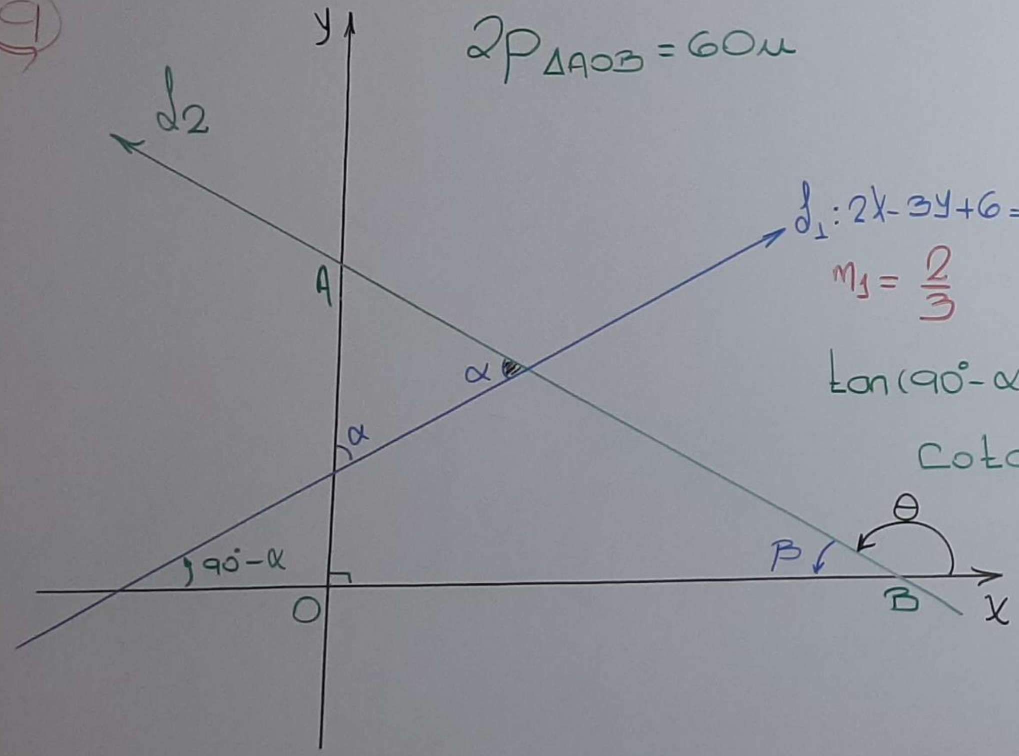
$$\frac{3}{2} = \left|\frac{3m_2 - 2}{3 + 2m_2}\right|$$

i) $\frac{3m_2 - 2}{3 + 2m_2} = \frac{3}{2} \rightarrow 6m_2 - 4 = 9 + 6m_2$

ii) $\frac{3m_2 - 2}{3 + 2m_2} = -\frac{3}{2} \rightarrow m_2 = -\frac{5}{12}$

(9)

$2P_{\Delta AOB} = 60u$



$d_1: 2x - 3y + 6 = 0$

$m_1 = \frac{2}{3}$

$\tan(90° - \alpha) = \frac{2}{3}$

$\cot\alpha = \frac{2}{3}$

$$\tan\alpha = \left| \frac{m_2 - m_1}{1 + m_2 \cdot m_1} \right|$$

$$\frac{3}{2} = \left| \frac{m_2 - \frac{2}{3}}{1 + m_2 \cdot \frac{2}{3}} \right|$$

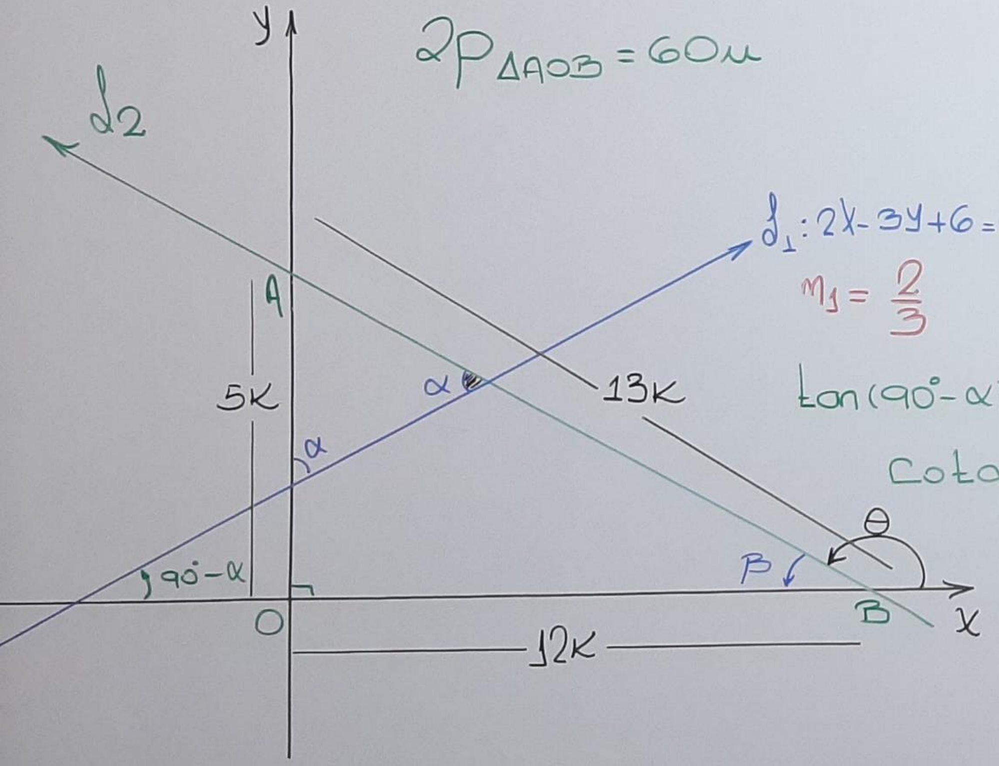
$$\frac{3}{2} = \left| \frac{3m_2 - 2}{3 + 2m_2} \right|$$

i) $\frac{3m_2 - 2}{3 + 2m_2} = \frac{3}{2} \rightarrow 6m_2 - 4 = 9 + 6m_2$

ii) $\frac{3m_2 - 2}{3 + 2m_2} = -\frac{3}{2} \rightarrow m_2 = -\frac{5}{12}$

$m_2 = \tan\theta = -\frac{5}{12}$

$\rightarrow \tan\beta = \frac{5}{12}$



$2P_{\Delta AOB} = 60u$

$\mathcal{L}_1: 2x-3y+6=0$

$m_1 = \frac{2}{3}$

$\tan(90^\circ-\alpha) = \frac{2}{3}$

$\cot\alpha = \frac{2}{3}$

$$\tan\alpha = \left|\frac{m_2-m_1}{1+m_2 \cdot m_1}\right|$$

$$\frac{3}{2} = \left|\frac{m_2-\frac{2}{3}}{1+m_2 \cdot \frac{2}{3}}\right|$$

$$\frac{3}{2} = \left|\frac{3m_2-2}{3+2m_2}\right|$$

i) $\frac{3m_2-2}{3+2m_2} = \frac{3}{2}$ → $6m_2-4 = 9+6m_2$

ii) $\frac{3m_2-2}{3+2m_2} = -\frac{3}{2}$ → $m_2 = -\frac{5}{12}$

✓ $m_2 = \tan\theta = -\frac{5}{12}$

→ $\tan\beta = \frac{5}{12}$

✓ $5K+12K+13K = 60$

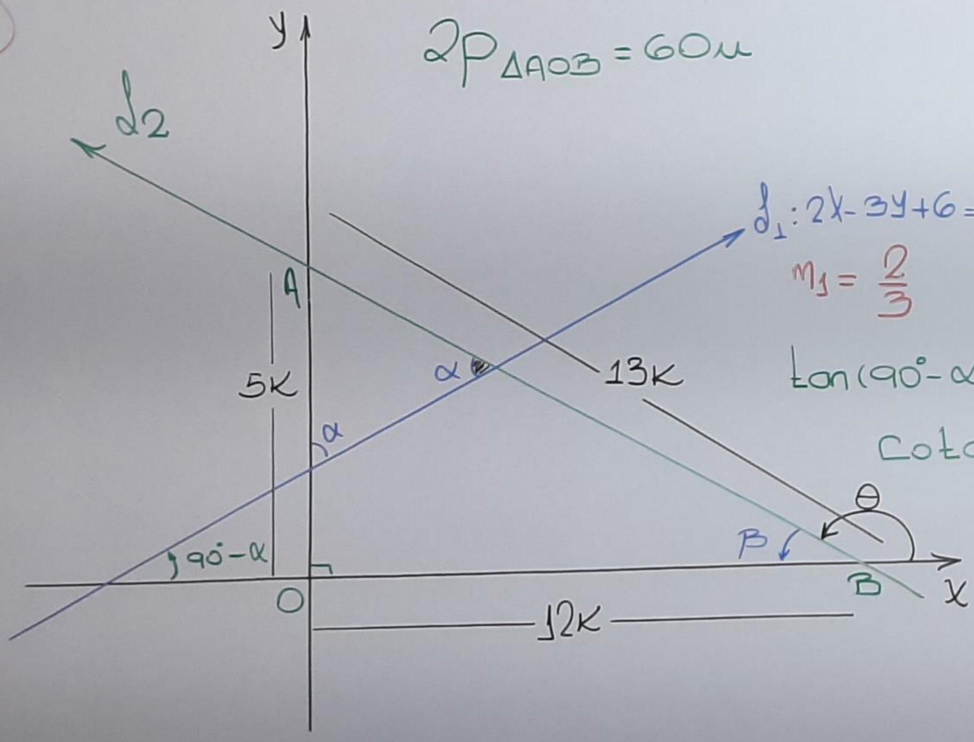
$30K = 60$

$K = 2$

→ $A(0;10) \wedge B(24;0)$

9

$2P_{\Delta AOB} = 60u$



$d_1: 2x - 3y + 6 = 0$

$m_1 = \dfrac{2}{3}$

$\tan(90° - \alpha) = \dfrac{2}{3}$

$\cot\alpha = \dfrac{2}{3}$

$$\tan\alpha = \left|\frac{m_2 - m_1}{1 + m_2 \cdot m_1}\right|$$

$$\frac{3}{2} = \left|\frac{m_2 - \frac{2}{3}}{1 + m_2 \cdot \frac{2}{3}}\right|$$

$$\frac{3}{2} = \left|\frac{3m_2 - 2}{3 + 2m_2}\right|$$

i) $\dfrac{3m_2 - 2}{3 + 2m_2} = \dfrac{3}{2} \rightarrow 6m_2 - 4 = 9 + 6m_2$

ii) $\dfrac{3m_2 - 2}{3 + 2m_2} = -\dfrac{3}{2} \rightarrow m_2 = -\dfrac{5}{12}$

✓ $m_2 = \tan\theta = -\dfrac{5}{12}$

$\rightarrow \tan\beta = \dfrac{5}{12}$

✓ $5K + 12K + 13K = 60$

$30K = 60$

$K = 2$

$\rightarrow A(0; 10) \wedge B(24; 0)$

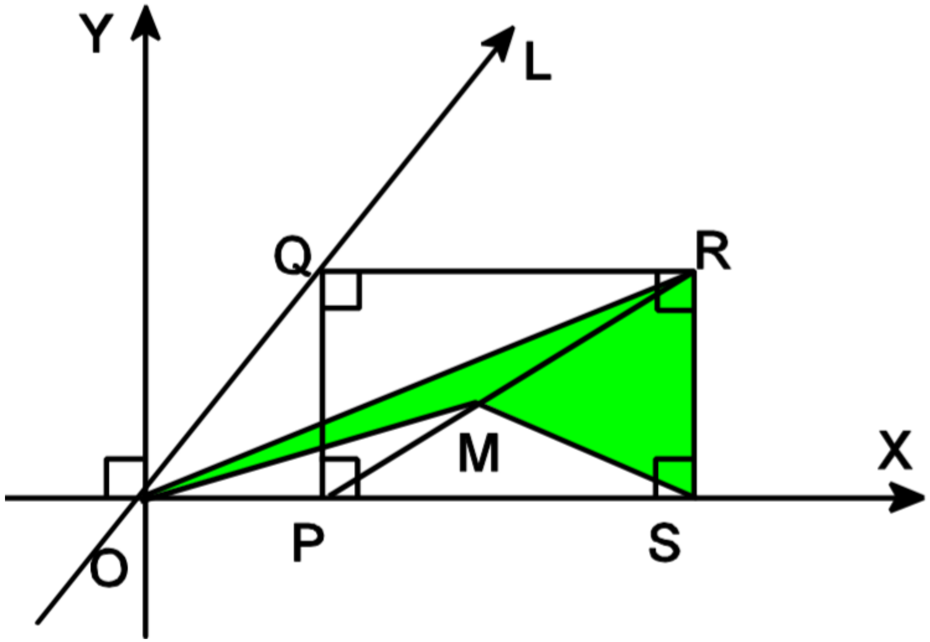
✓ $d_2: \dfrac{x}{24} + \dfrac{y}{10} = 1$

$\therefore d_2: 5x + 12y - 120 = 0$

CLAVE A

Problema 10 :

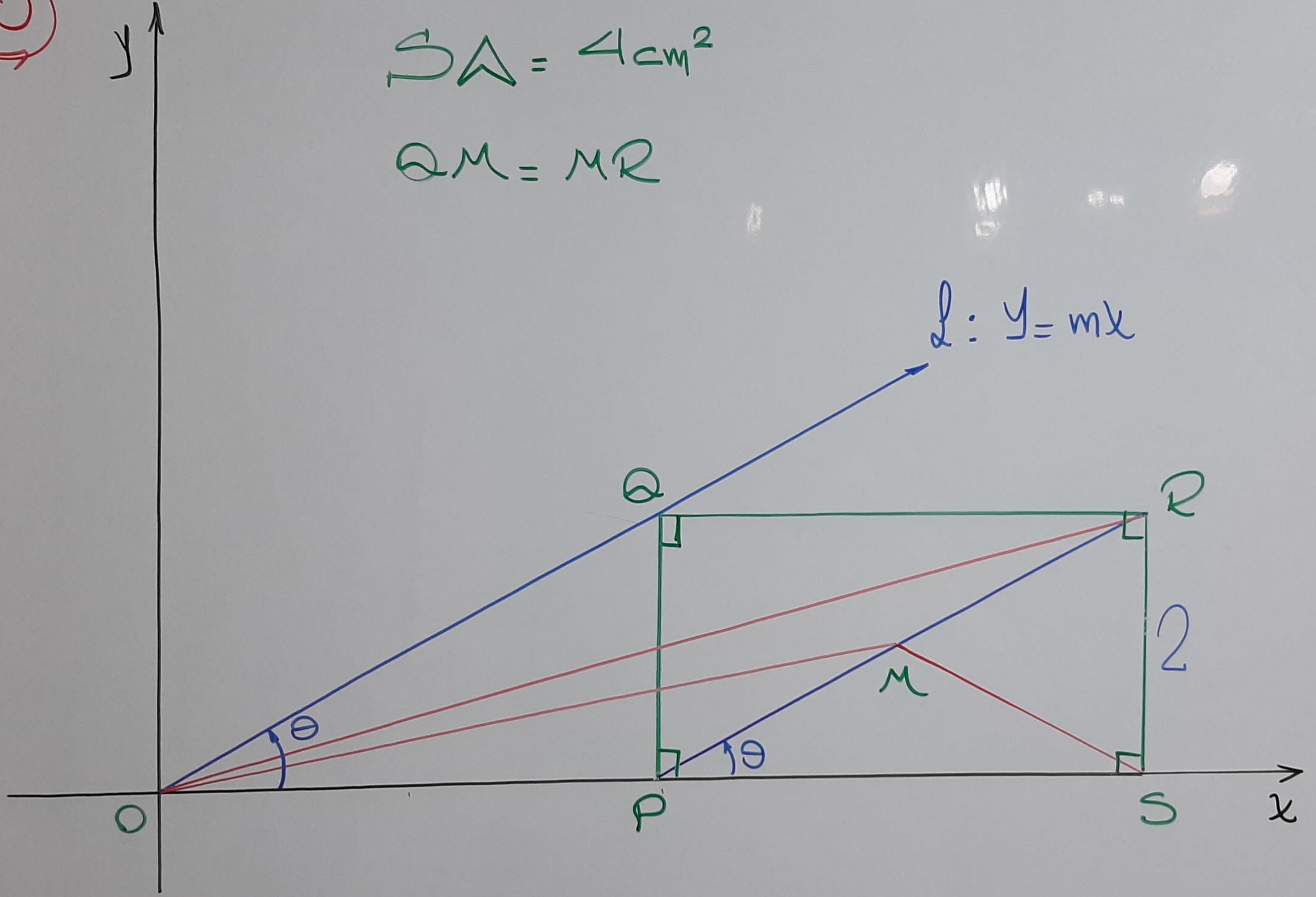
Hallar la ecuación de la recta L, sabiendo que el área de la región cuadrangular ORSM es 4 cm^2, QM=MR, RS=2 cm y $\overline{OQ} \parallel \overline{PR}$



A) x=y
B) x=2y
C) 3x=y
D) 2x=y
E) x=y

$S\triangle = 4cm^2$

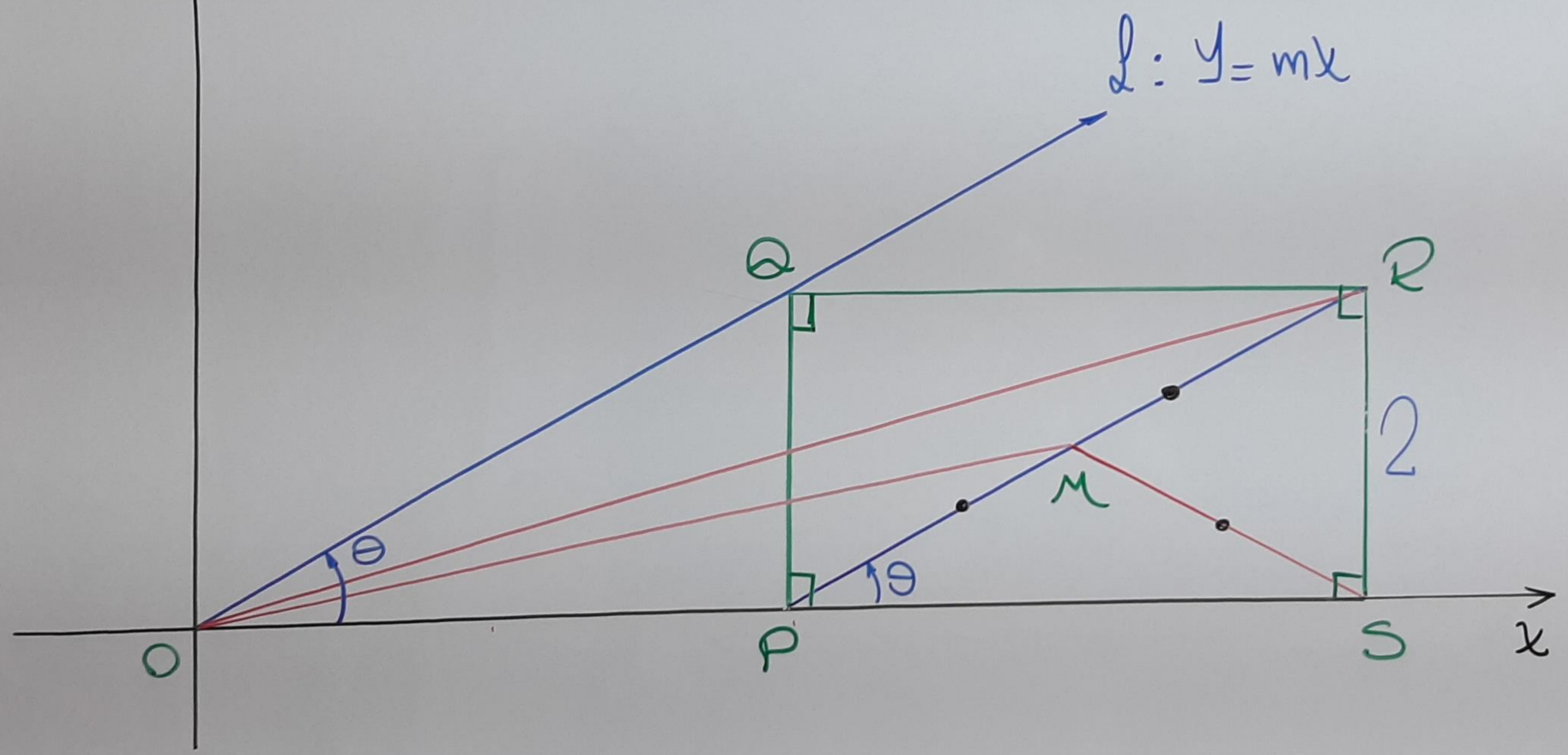
$QM = MR$



10

$S_{\triangle} = 4cm^2$

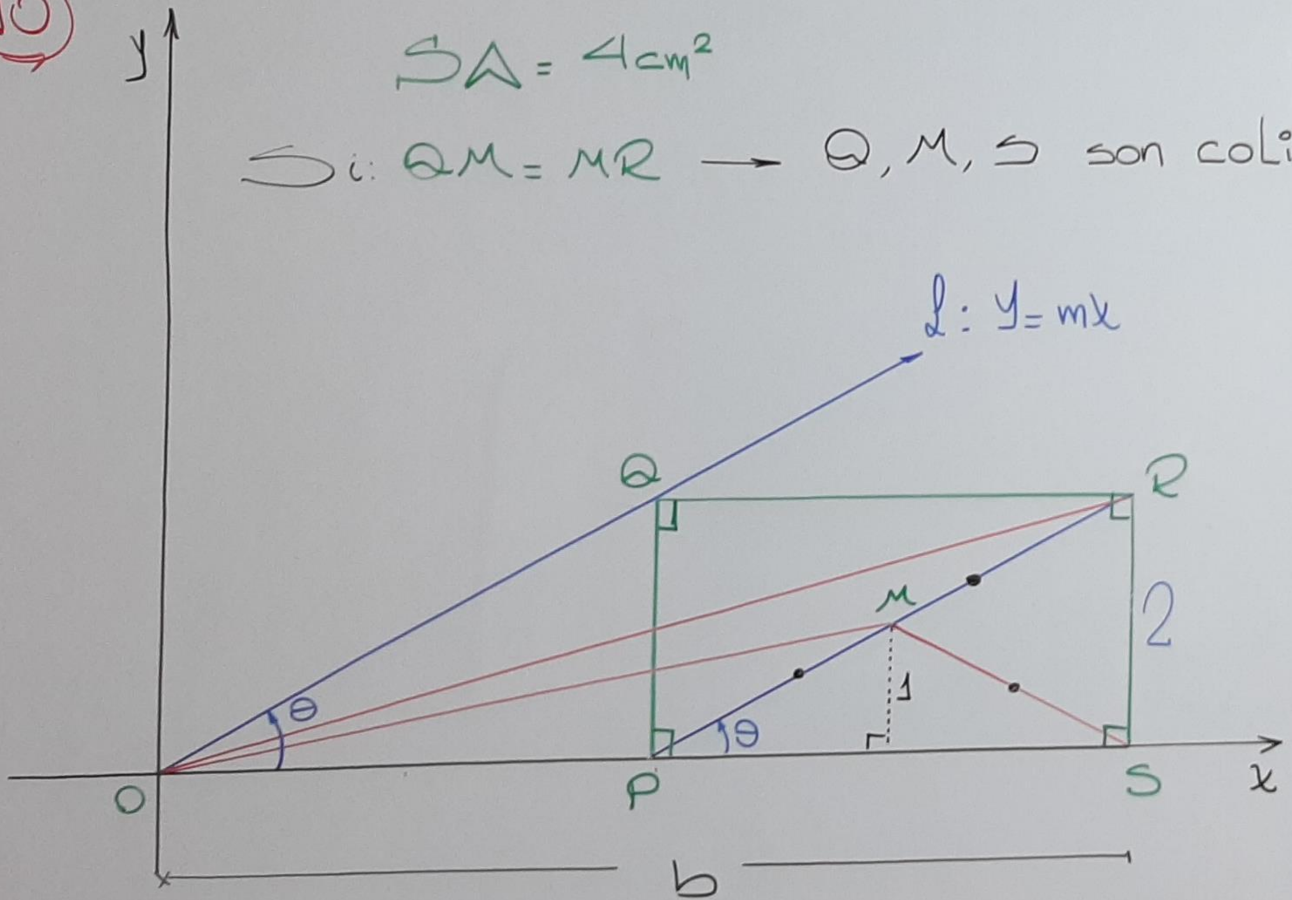
Si: $QM = MR \rightarrow Q, M, S$ son colineales



(10)

$S\triangle = 4cm^2$

Si: $QM = MR \rightarrow Q, M, S$ son colineales



✓ $S_{\triangle ORSM} = S_{\triangle RSO} - S_{\triangle OMS}$

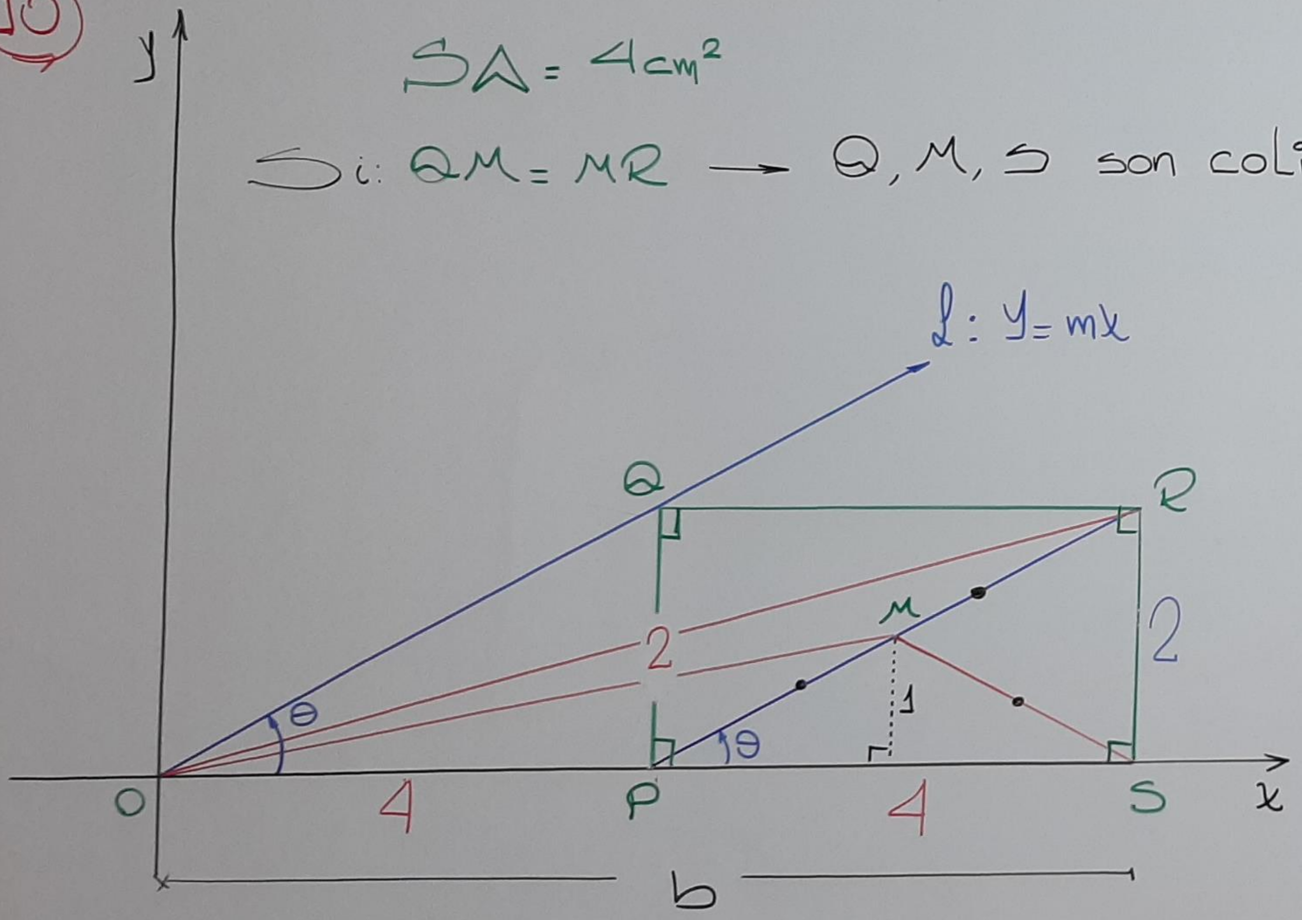
$$4 = \frac{b \cdot 2}{2} - \frac{b \cdot 1}{2}$$

$$b = 8$$

10

$S\triangle = 4\,cm^2$

Si: $QM = MR \rightarrow Q, M, S$ son colineales



✓ $S_{\triangle ORSM} = S_{\triangle RSO} - S_{\triangle OMS}$

$$4 = \frac{b \cdot 2}{2} - \frac{b \cdot 1}{2}$$

$b = 8$

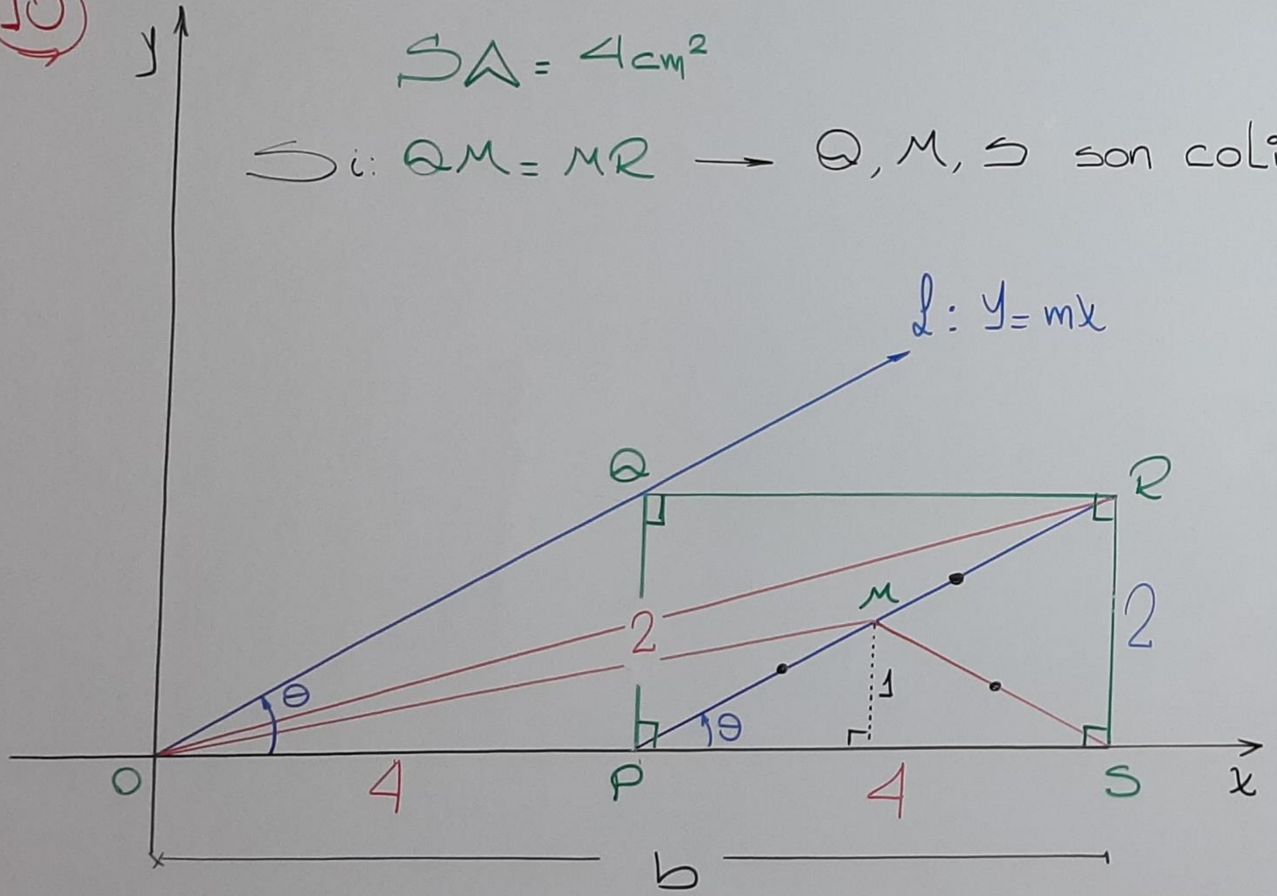
✓ $S_{\triangle OPQ} \cong S_{\triangle PSR}$

$\therefore\ OP = PS = 4$

10

$S\triangle = 4\,cm^2$

Si: $QM = MR \rightarrow Q, M, S$ son colineales



✓ $S_{\triangle ORSM} = S_{\triangle RSO} - S_{\triangle OMS}$

$$4 = \frac{b \cdot 2}{2} - \frac{b \cdot 1}{2}$$

$b = 8$

✓ $S_{\triangle OPQ} \cong S_{\triangle PSR}$

$\rightarrow OP = PS = 4$

$\Rightarrow m = \tan\theta = \frac{1}{2}$

$y = \frac{1}{2}x$

$\therefore x = 2y$ CLAVE B

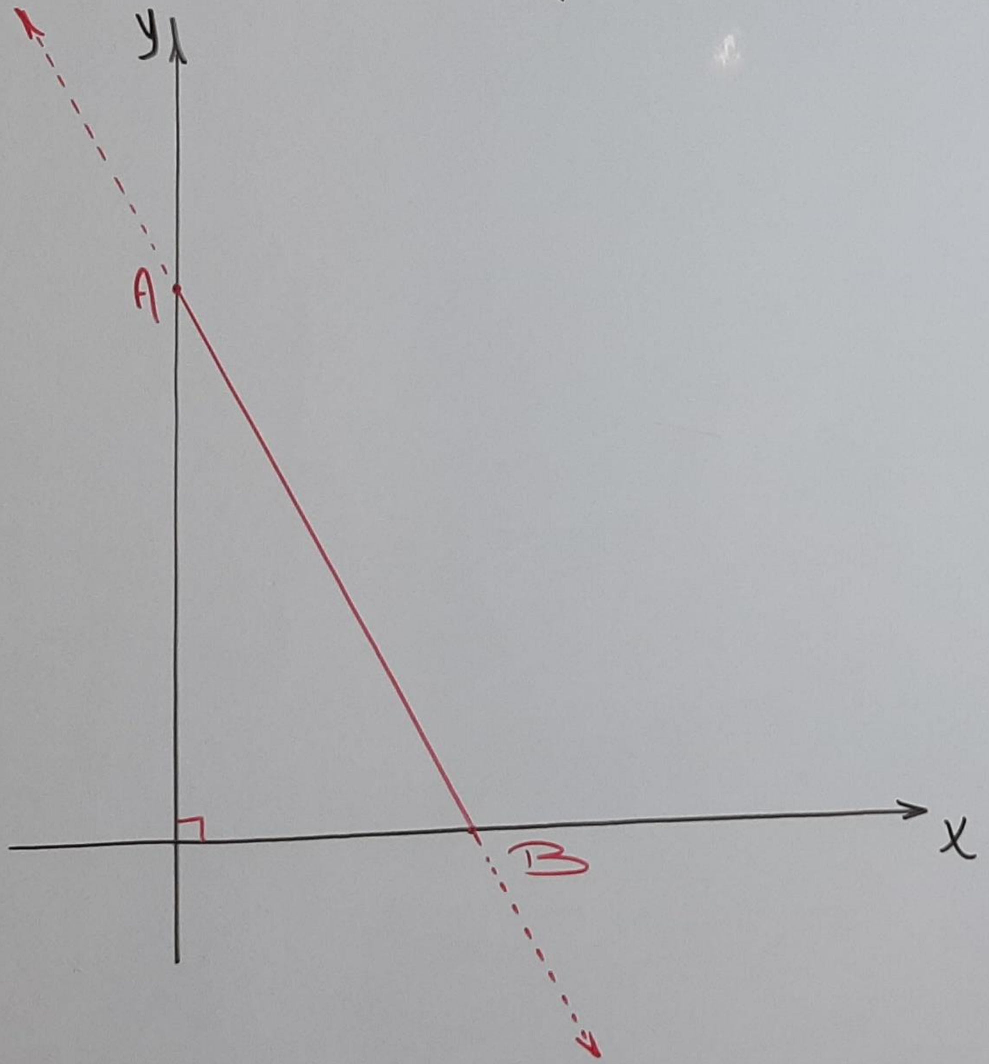
Problema 11:

La recta L: $3x + 2y - 6 = 0$ intersecta a los ejes coordenados en los puntos A y B. Calcular la ecuación de la mediatriz de AB.

A) $4x - 6y + 5 = 0$
B) $2x - 3y + 5 = 0$
C) $4x - 6y + 9 = 0$
D) $2x - 3y + 9 = 0$
E) $4x - 6y + 15 = 0$

11

$$d: 3x+2y-6=0 \begin{cases} x=0 \rightarrow y=3 \\ y=0 \rightarrow x=2 \end{cases}$$

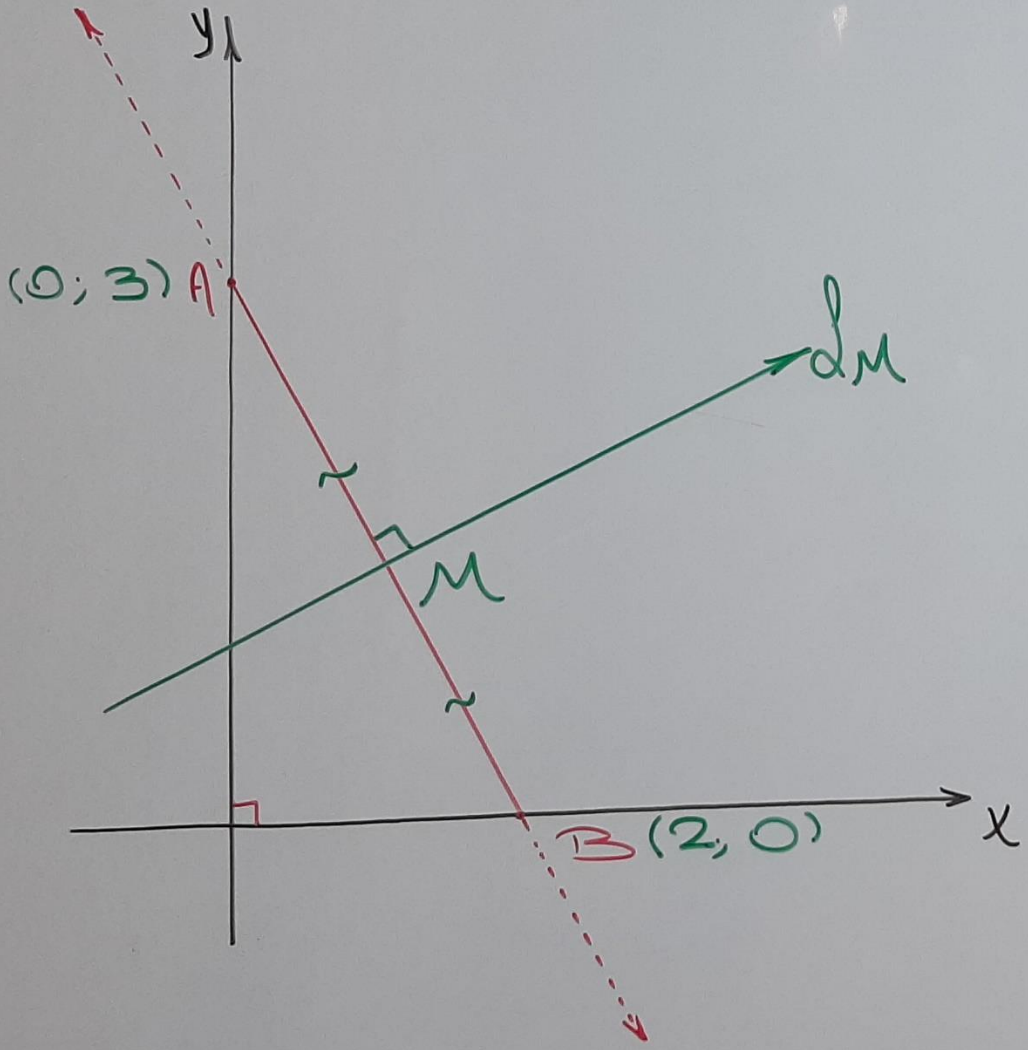


11

$$d: 3x+2y-6=0 \begin{cases} x=0 \rightsquigarrow y=3 \\ y=0 \rightsquigarrow x=2 \end{cases}$$

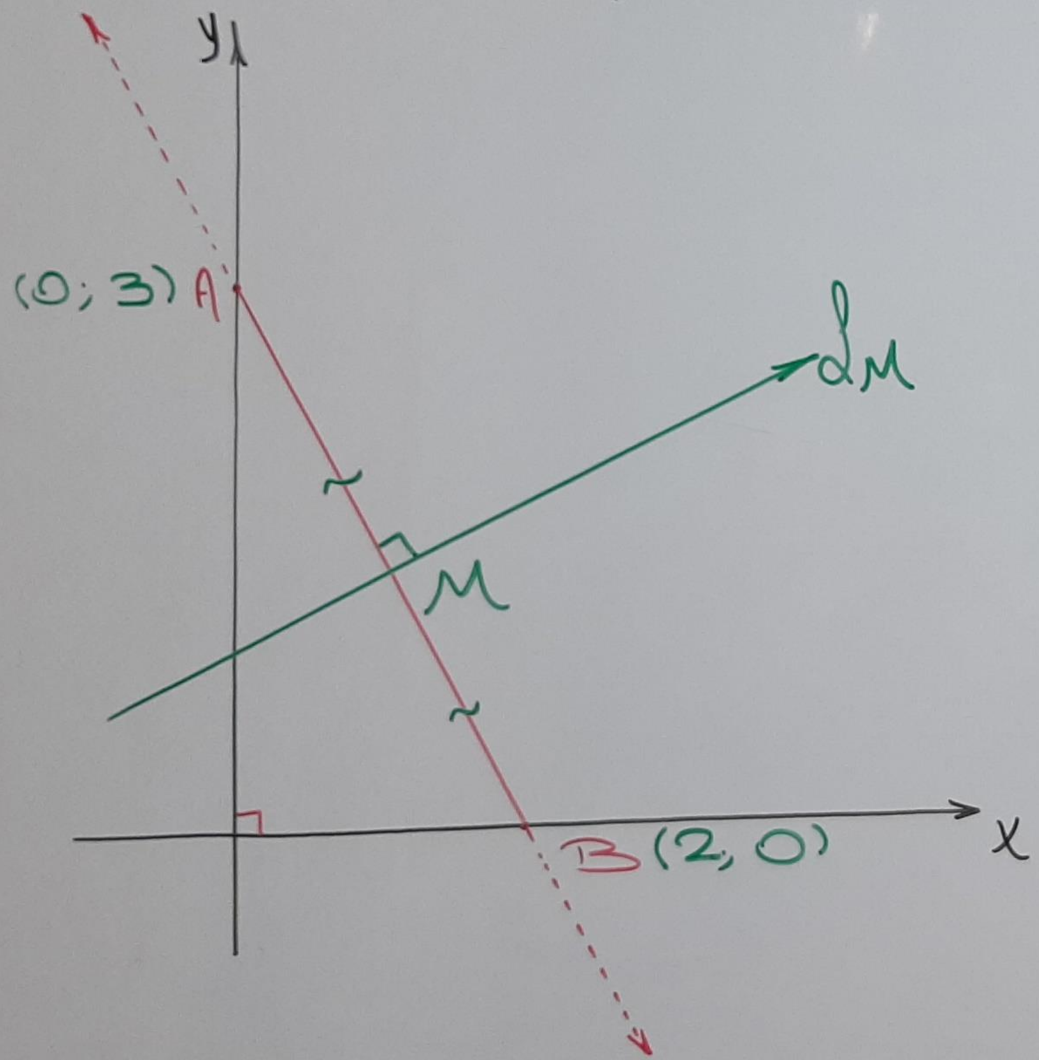
$$M\left(\frac{0+2}{2}; \frac{3+0}{2}\right)$$

$$M\left(1; \frac{3}{2}\right)$$



(11)

$$d: 3x+2y-6=0 \begin{cases} x=0 \rightarrow y=3 \\ y=0 \rightarrow x=2 \end{cases}$$



i) $M\left(\dfrac{0+2}{2}; \dfrac{3+0}{2}\right)$

$M(1; \frac{3}{2})$

x_0 y_0

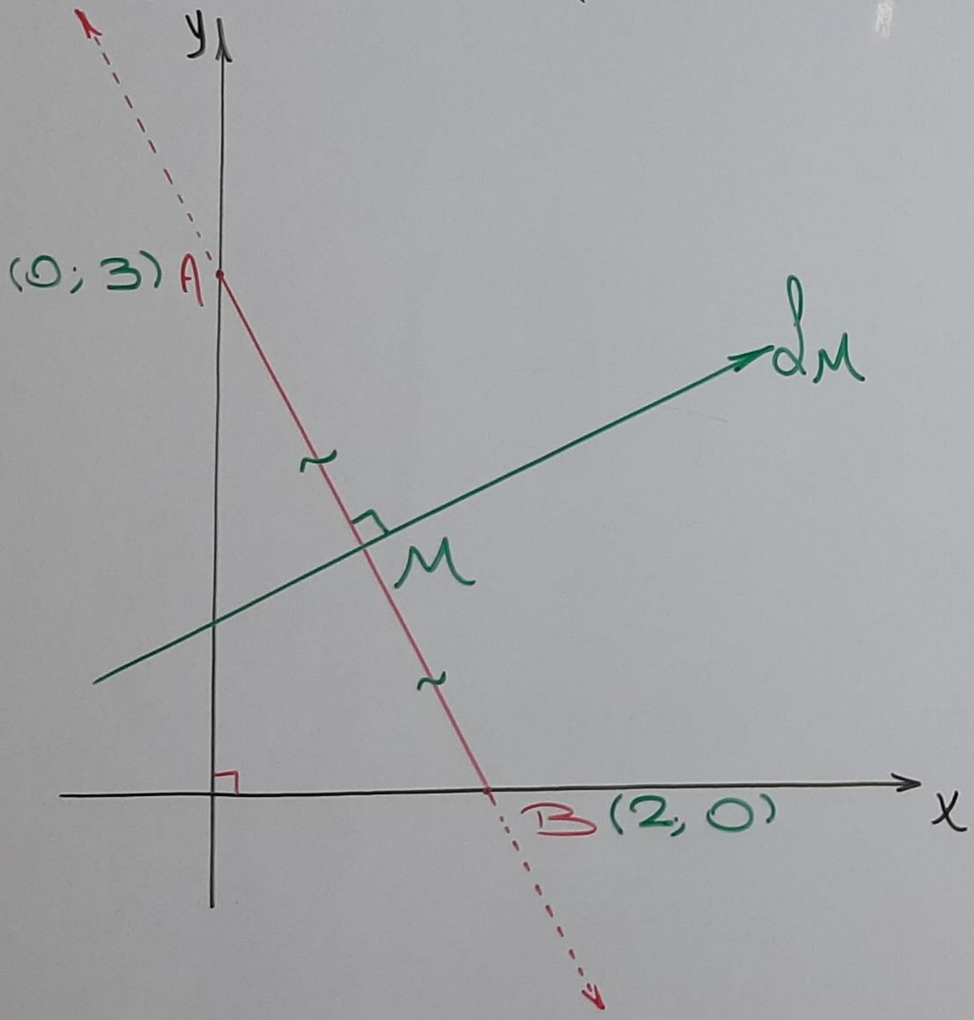
ii) $d \perp d_M \rightarrow m_d \cdot m_{d_M} = -1$

$-\frac{3}{2} \cdot m_{d_M} = -1$

$m_{d_M} = \frac{2}{3}$

11

$\mathcal{L}: 3x+2y-6=0 \begin{cases} x=0 \rightarrow y=3 \\ y=0 \rightarrow x=2 \end{cases}$



i) $M\left(\dfrac{0+2}{2}; \dfrac{3+0}{2}\right)$

$M(\underset{x_0}{1}; \underset{y_0}{\tfrac{3}{2}})$

ii) $\mathcal{L} \perp \mathcal{L}_M \rightarrow m_{\mathcal{L}} \cdot m_{\mathcal{L}_M} = -1$

$-\dfrac{3}{2} \cdot m_{\mathcal{L}_M} = -1$

$m_{\mathcal{L}_M} = \dfrac{2}{3}$

✓ $y - y_0 = m(x - x_0)$

$y - \dfrac{3}{2} = \dfrac{2}{3}(x-1)$

$\therefore \mathcal{L}_M: 4x - 6y + 5 = 0$

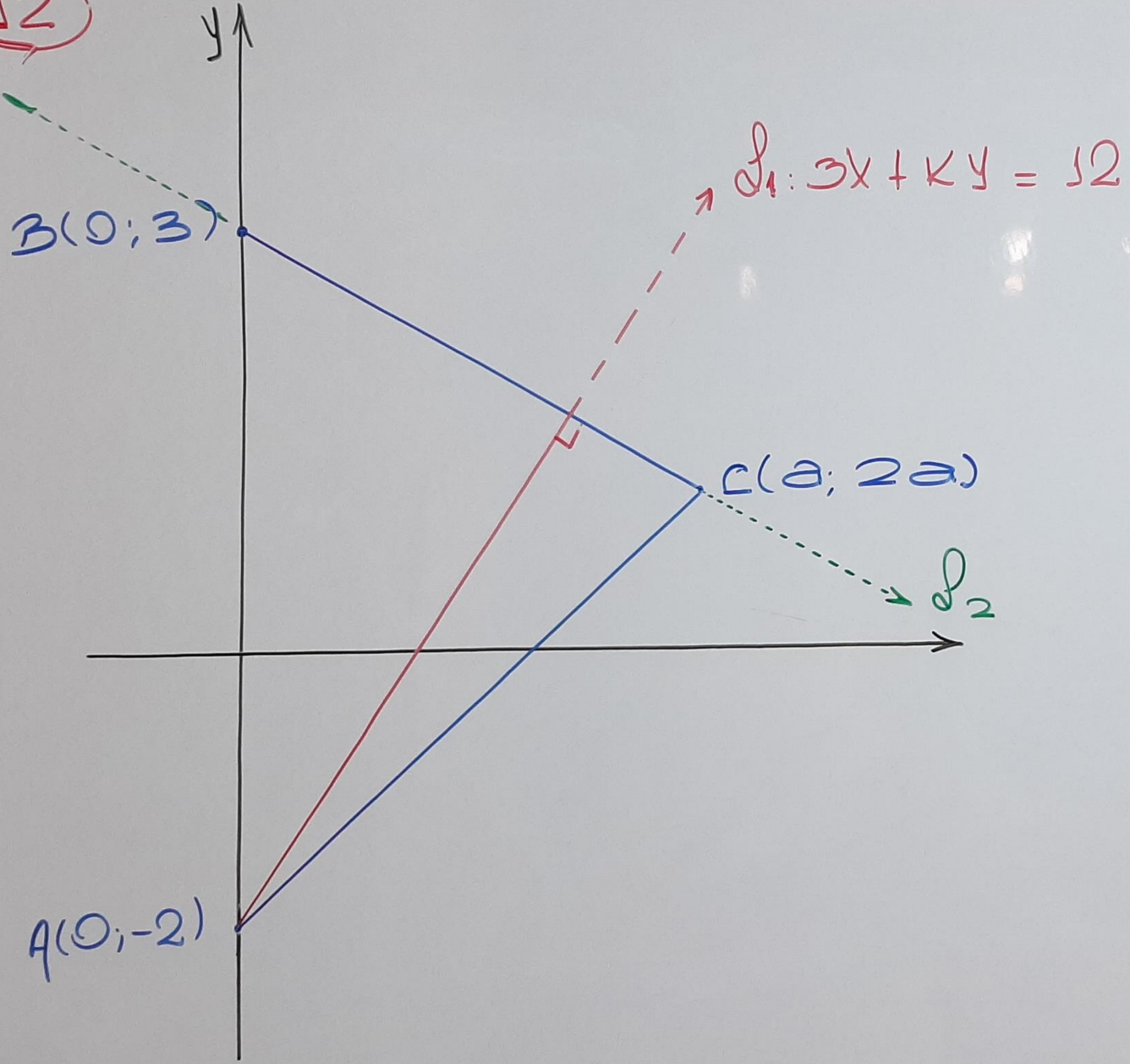
CLAVE A

Problema 12:

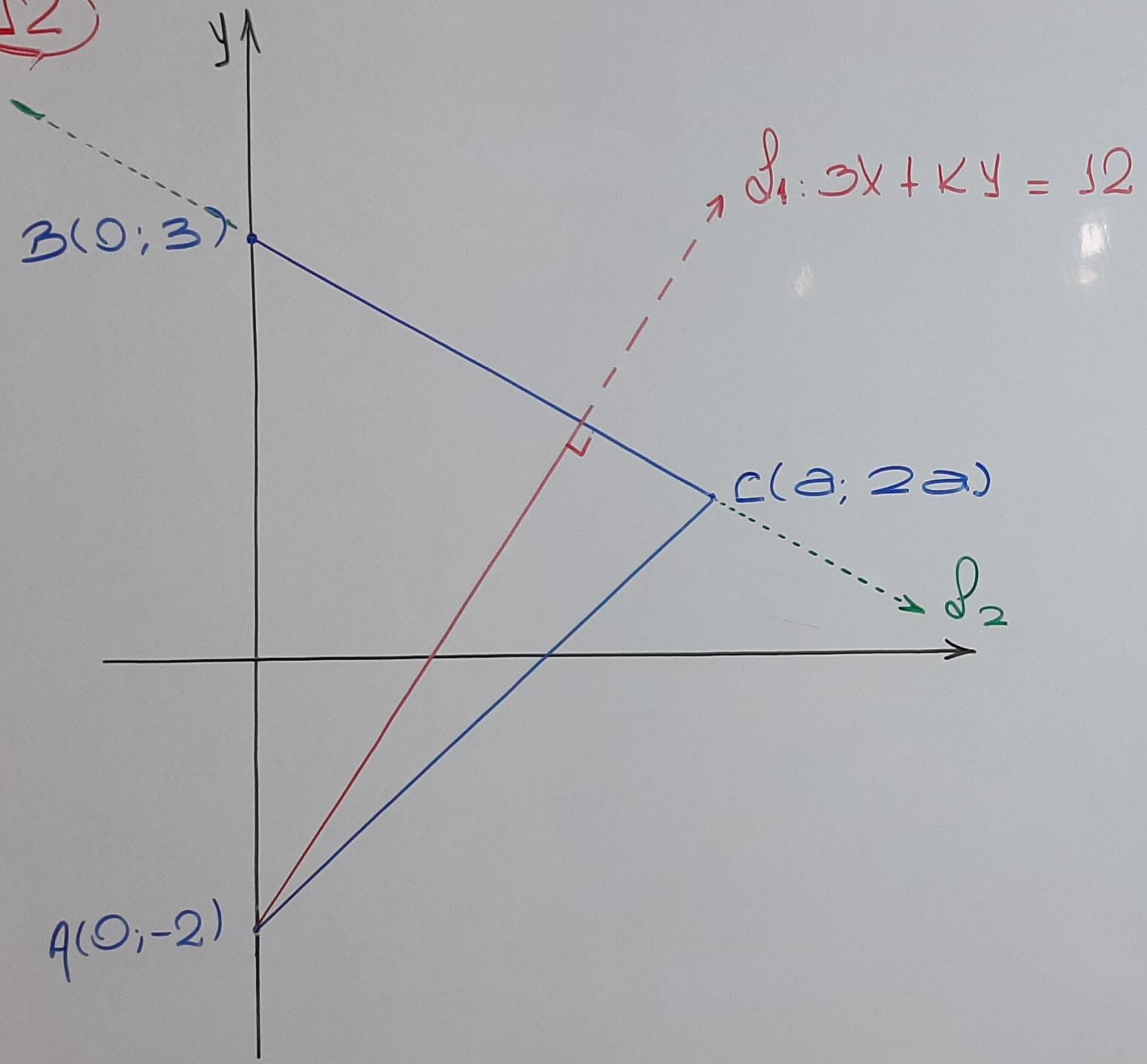
Los vértices de un triangulo son A(0;-2),B(0;3) y C(a;2a); la ecuación de la altura relativa de $\overline{BC}$ es $3x + ky = 12$. Hallar la ecuación de la recta que contiene a $\overline{BC}$.

A) $y - 3x = 3$
B) $y - 3x = 5$
C) $y - 4x = 6$
D) $y - 7x = 3$
E) $y - 8x = 6$

12



12



i) $A \in \mathcal{L}_1: 3x + ky = 12$

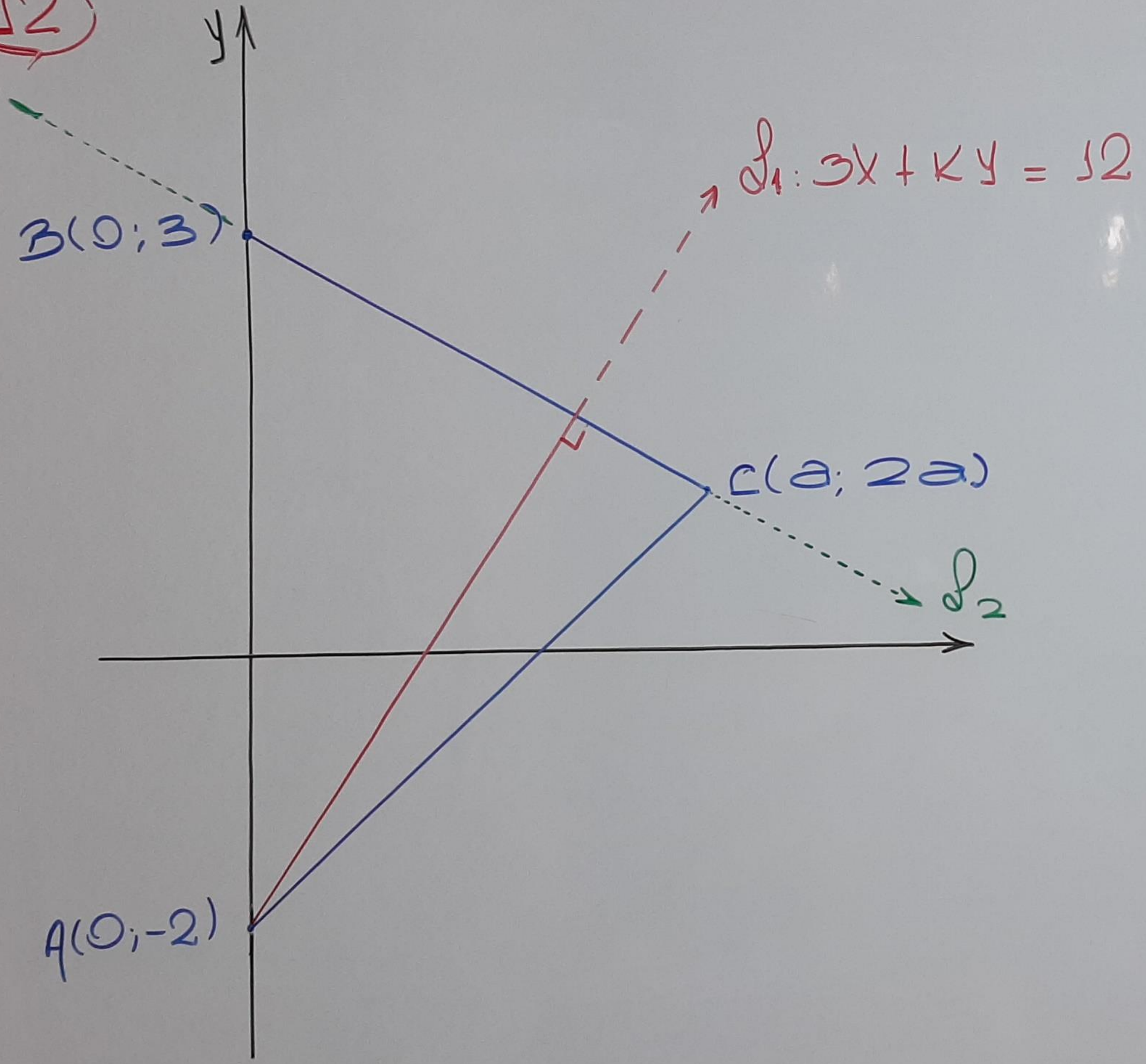
$3(0) + k(-2) = 12$

$k = -6$

$\hookrightarrow \mathcal{L}_1: 3x - 6y = 12$

$\Rightarrow m_1 = \dfrac{1}{2}$

12



i) $A \in d_1 : 3x + ky = 12$

$3(0) + k(-2) = 12$

$k = -6$

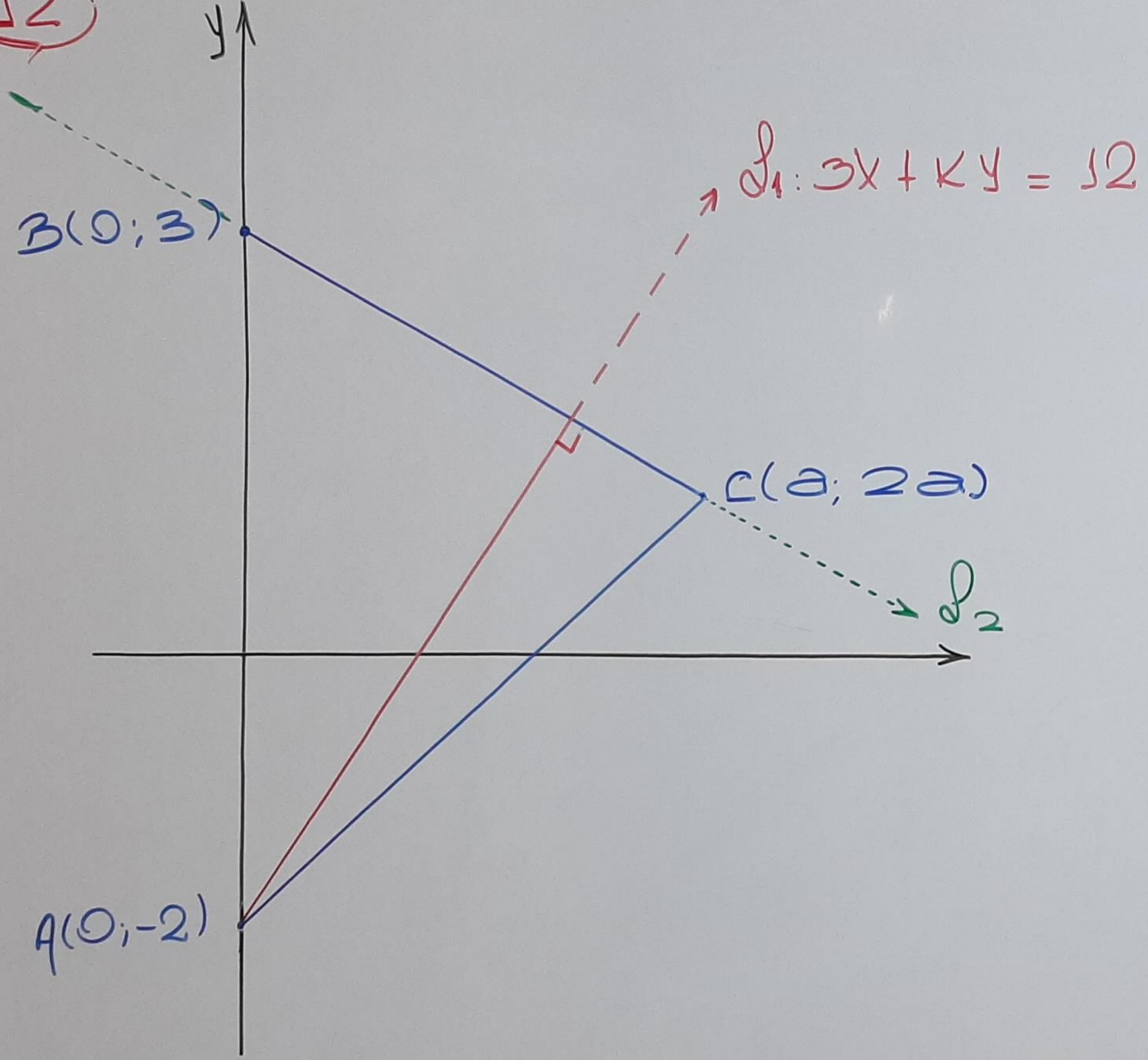
$\hookrightarrow d_1 : 3x - 6y = 12$

$\Rightarrow m_1 = \frac{1}{2}$

ii) $d_1 \perp d_2$

Si : $m_1 = \frac{1}{2} \Rightarrow m_2 = -2$

12



i) $A \in \mathcal{L}_1 : 3x + ky = 12$

$3(0) + k(-2) = 12$

$k = -6$

$\mathcal{L}_1 : 3x - 6y = 12$

$\Rightarrow m_1 = \frac{1}{2}$

ii) $\mathcal{L}_1 \perp \mathcal{L}_2$

Si: $m_1 = \frac{1}{2} \Rightarrow m_2 = -2$

$\mathcal{L}_2 \begin{cases} B(0;3) \\ m_2 = -2 \end{cases}$

$y - (3) = -2(x - 0)$

$\therefore \mathcal{L}_2 : 2x + y = 3$

"No hay clave"

Problema 13:

Hallar la ecuación de la mediatriz del segmento $\overline{AB}$, si: A(-3;2) y B(1;6).

A) $x + y - 3 = 0$

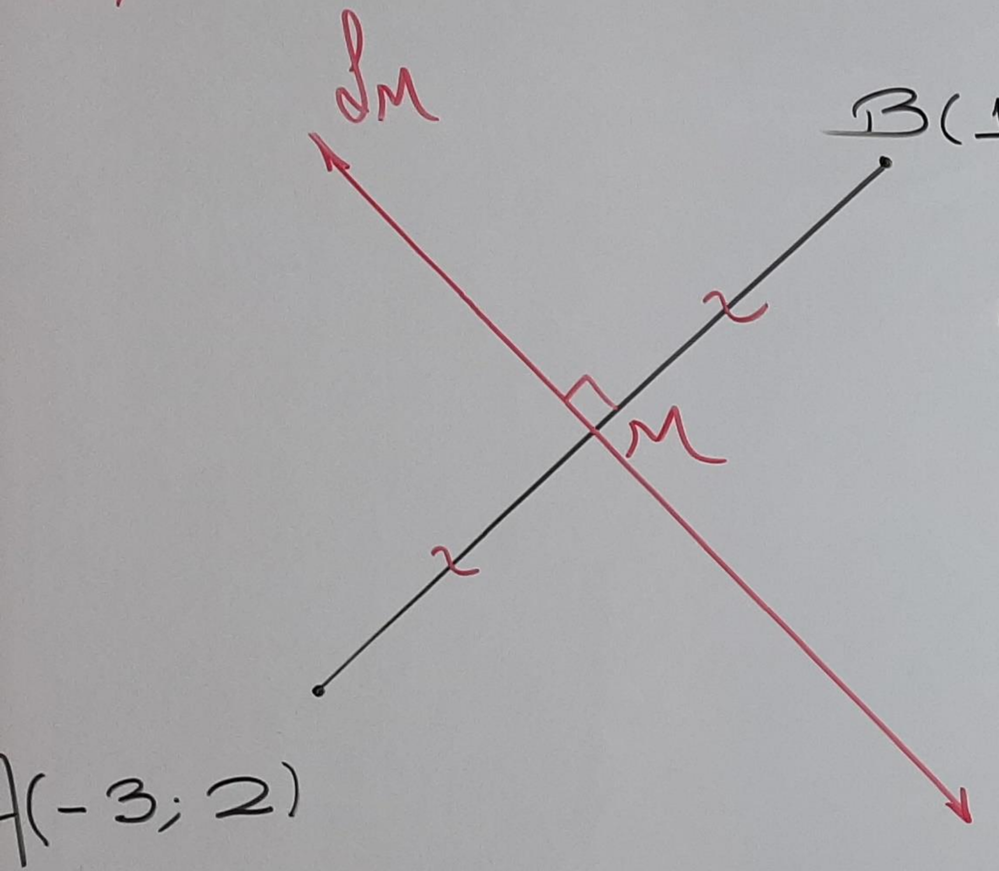
B) $3x - 2y - 1 = 0$

C) $x - 3y + 1 = 0$

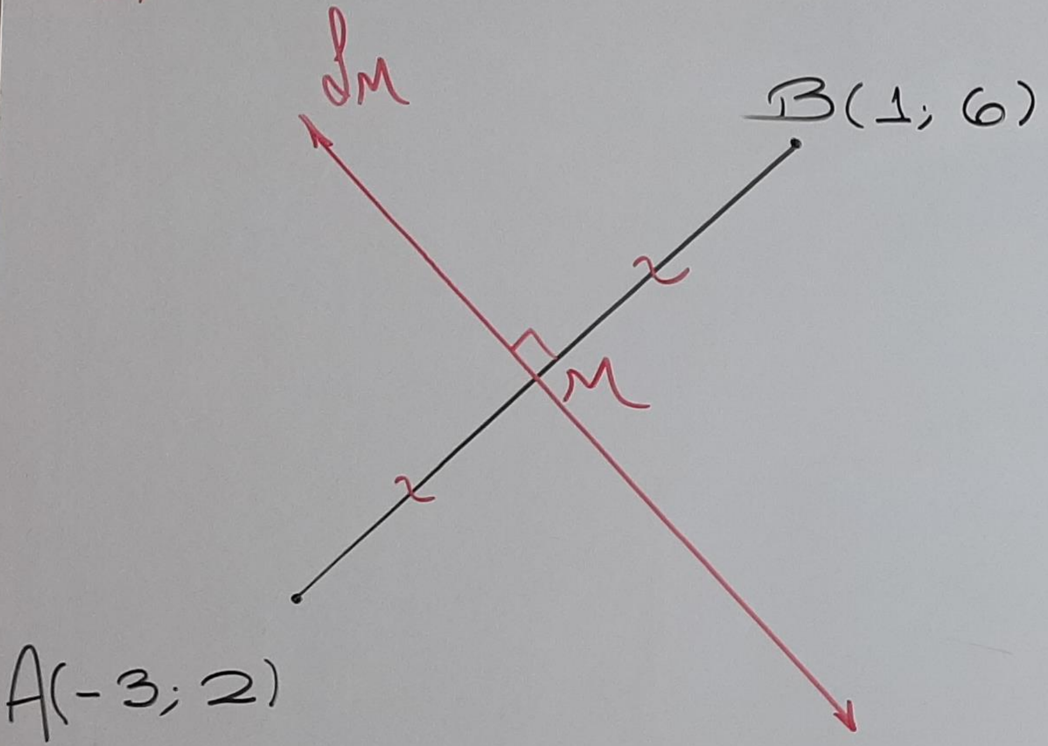
D) $2x - 3y - 3 = 0$

E) $x - 3y + 2 = 0$

13

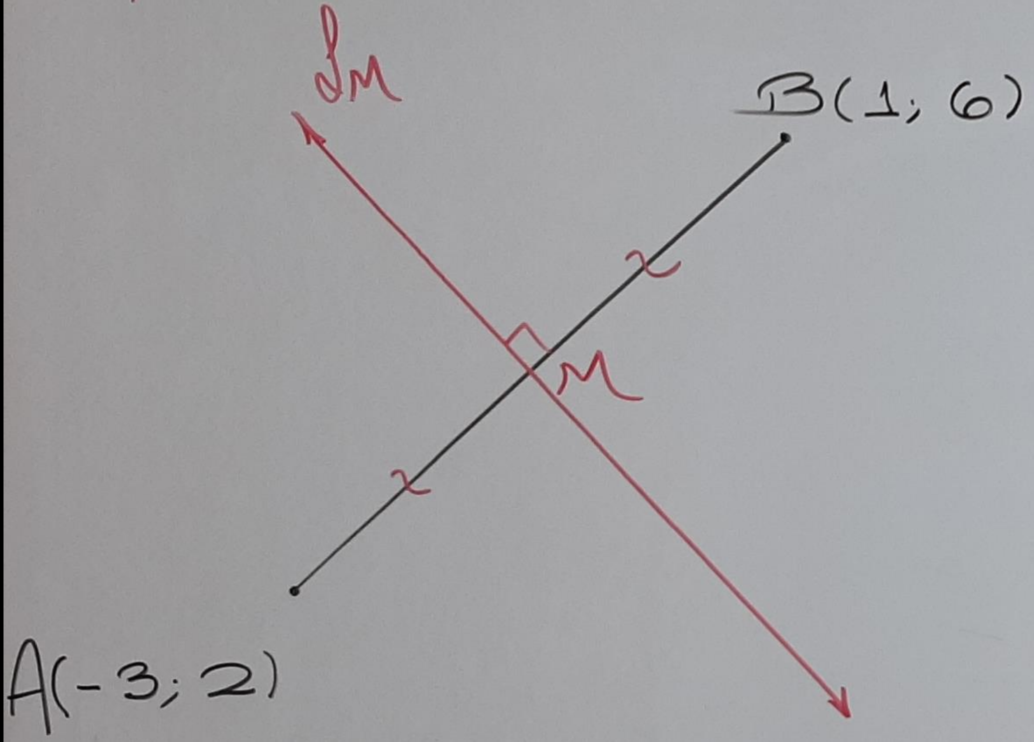


13



$$M\left(\frac{-3+1}{2}\,;\ \frac{2+6}{2}\right) \Rightarrow M(-1;\ 4)$$

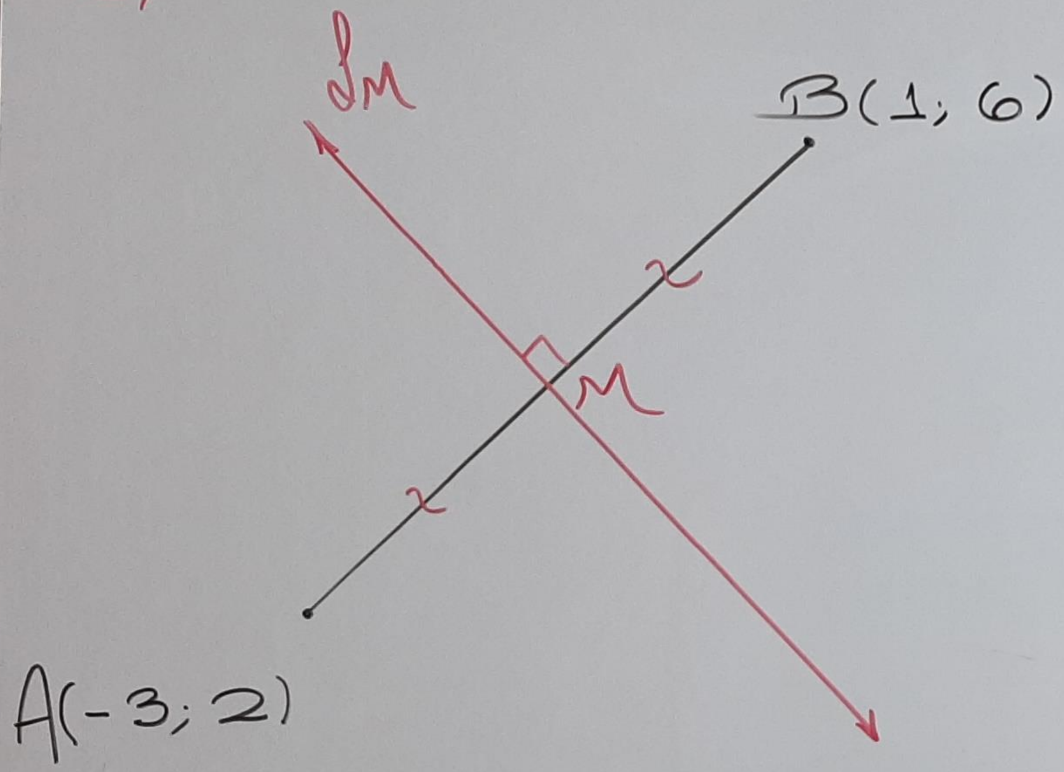
13



i) $M\left(\frac{-3+1}{2}; \frac{2+6}{2}\right)$ $M(-1; 4)$

ii) $m_{\overline{AB}} = \frac{6-2}{1-(-3)} = 1$

13



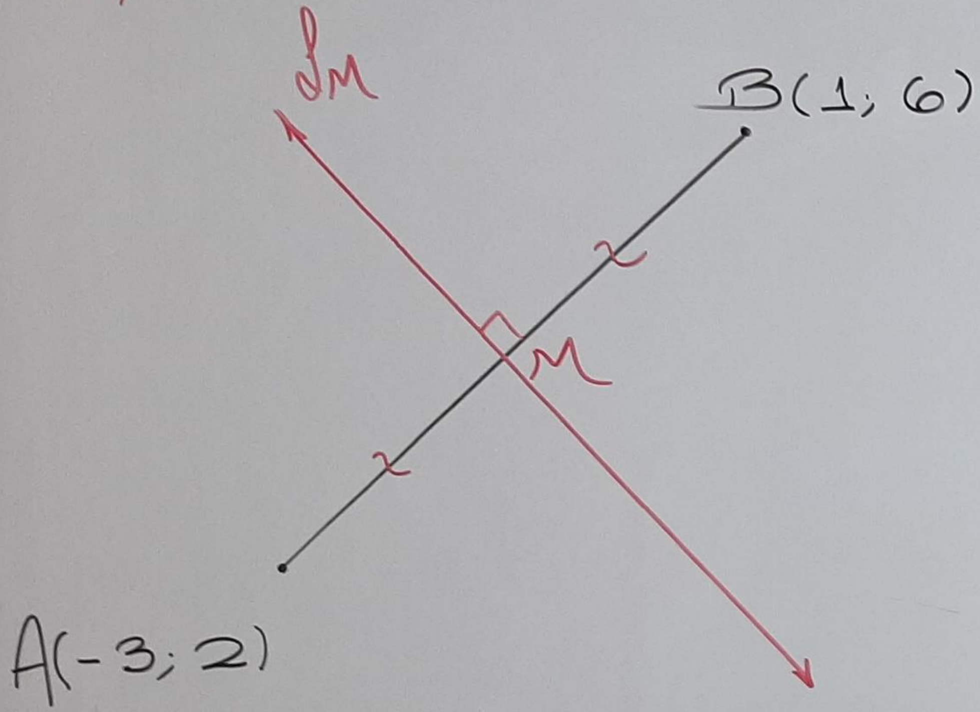
i) $M\left(\frac{-3+1}{2}; \frac{2+6}{2}\right) \Rightarrow M(-1; 4)$

ii) $m_{\overline{AB}} = \frac{6-2}{1-(-3)} = 1$

iii) $\mathcal{L}_M \perp \overline{AB} \Rightarrow$ Si: $m_{\overline{AB}} = 1$

$\Rightarrow m_{\mathcal{L}} = -1$

13



i) $M\left(\frac{-3+1}{2};\ \frac{2+6}{2}\right) \Rightarrow M(-1;\ 4)$

ii) $m_{\overline{AB}} = \frac{6-2}{1-(-3)} = 1$

iii) $\mathcal{L}_M \perp \overline{AB} \Rightarrow$ Si: $m_{\overline{AB}} = 1$

$\Rightarrow m_{\mathcal{L}} = -1$

$\Rightarrow y - y_0 = m(x - x_0)$

$y - 4 = -1(x - (-1))$

$\therefore \mathcal{L}_M:\ x + y - 3 = 0$

CLAVE A

Problema 14:

Calcular la longitud de la circunferencia de centro (2;-1) tangente a la recta:

$$3x + 4y + 13 = 0$$

A) 2π u

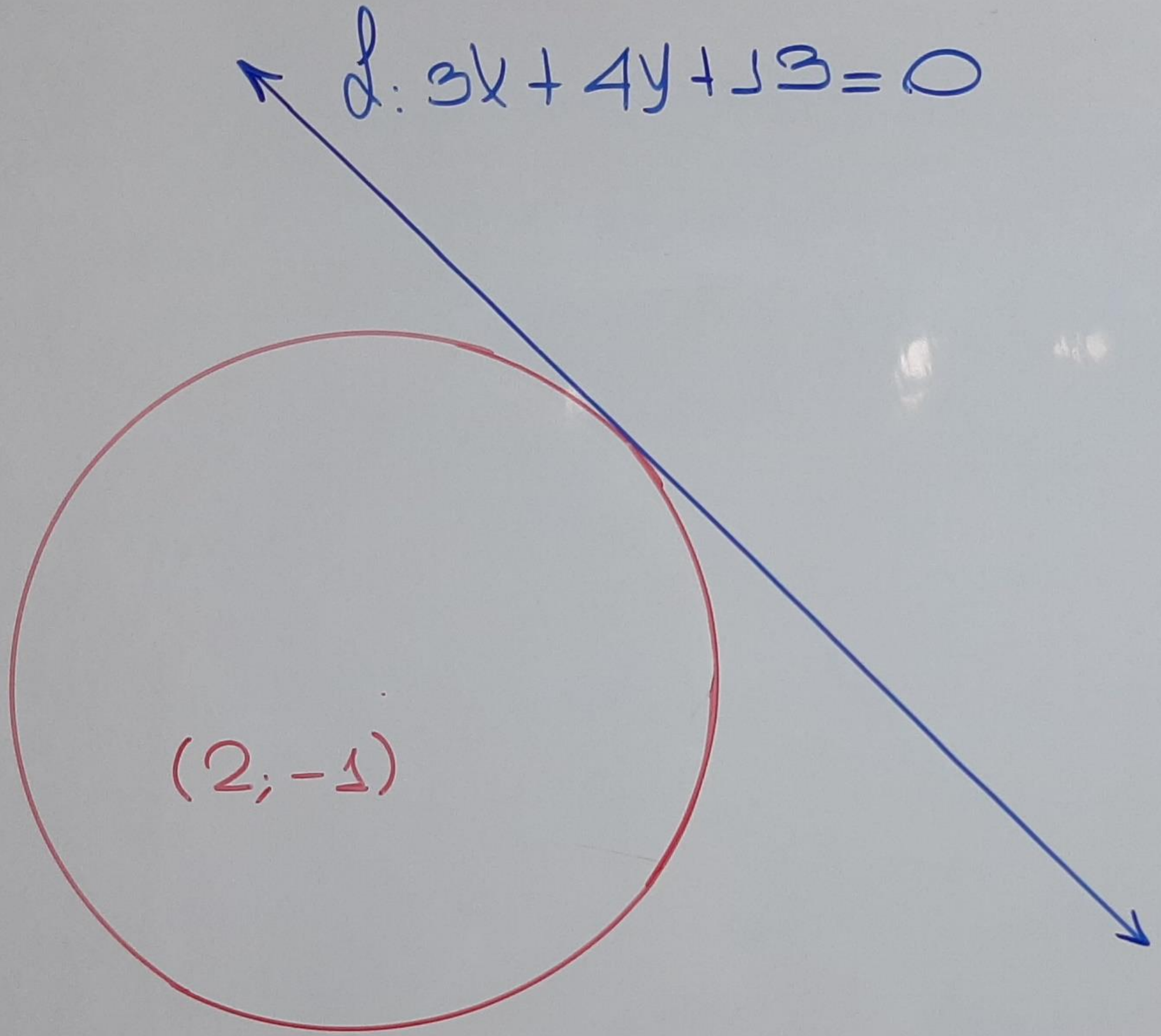
B) 4π u

C) 5π u

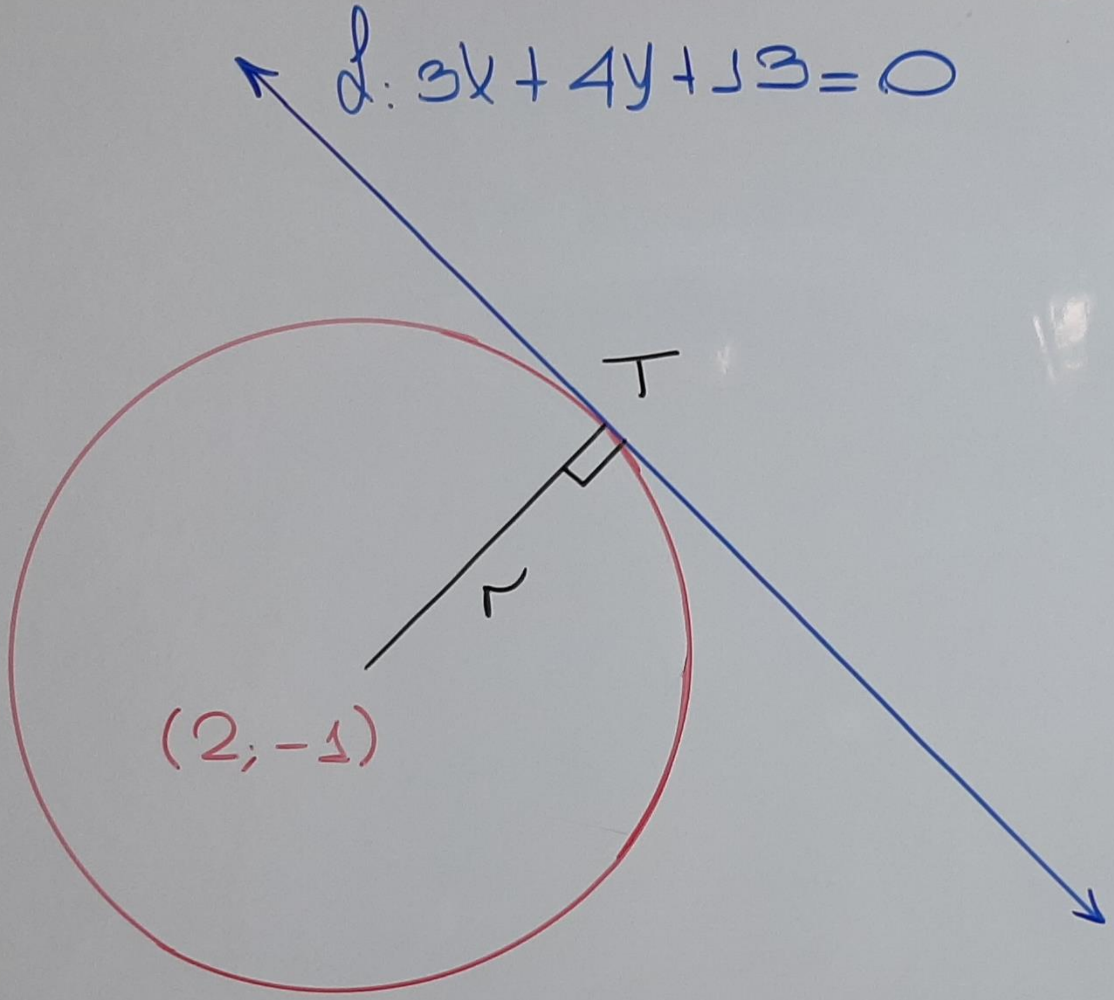
D) 6π u

E) 9π u

14



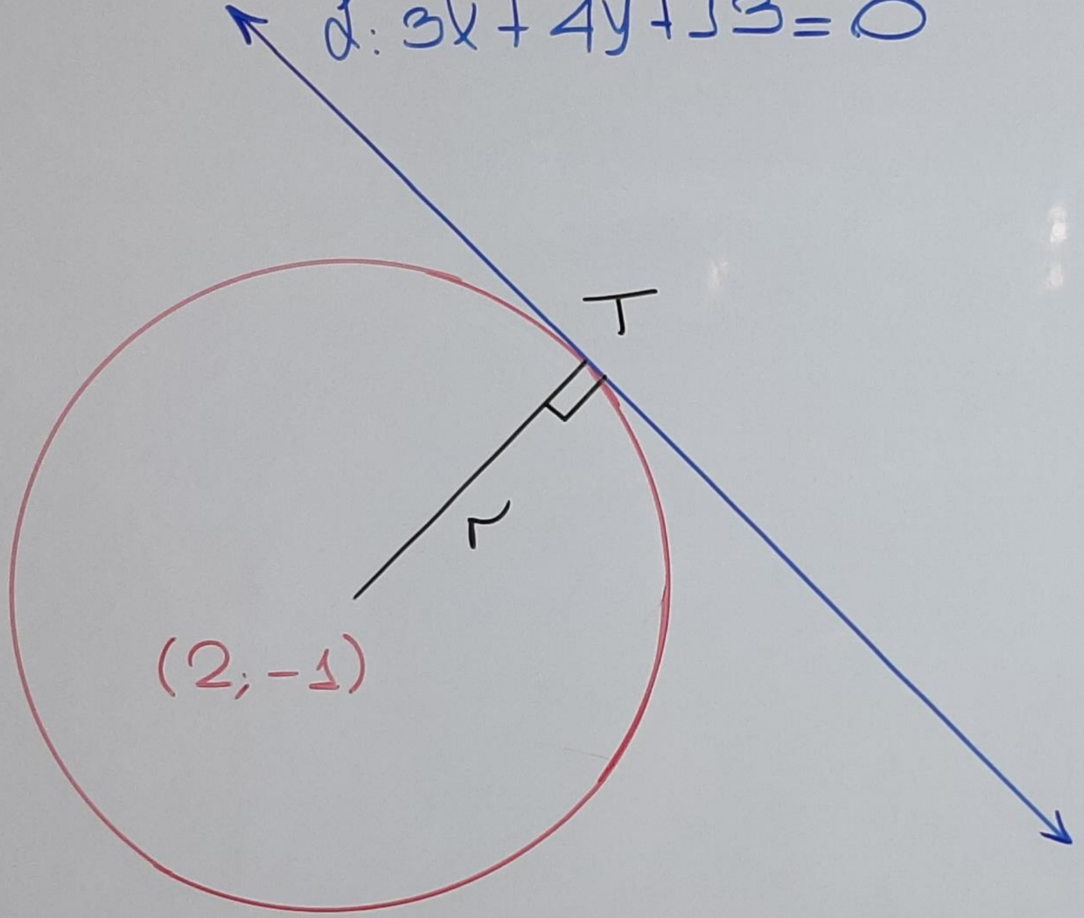
14



$$r = \frac{|3(\quad) + 4(\quad) + 13|}{\sqrt{3^2 + 4^2}}$$

14

$\ell: 3x + 4y + 13 = 0$



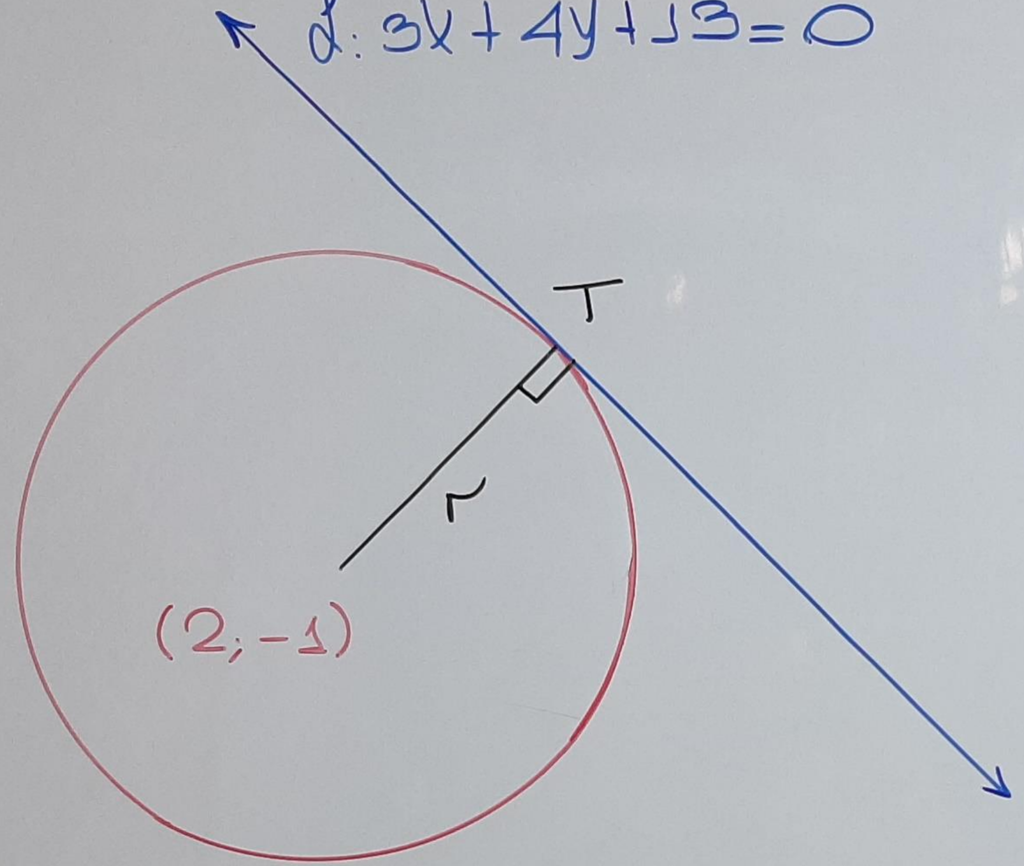
$$r = \frac{|3(2) + 4(-1) + 13|}{\sqrt{3^2 + 4^2}}$$

$$r = \frac{15}{5}$$

$$r = 3$$

14

$\mathscr{L}: 3x + 4y + 13 = 0$



$$r = \frac{|3(2) + 4(-1) + 13|}{\sqrt{3^2 + 4^2}}$$

$$r = \frac{15}{5}$$

$$r = 3$$

$$L_{\odot} = 2\pi r$$

$$\therefore L_{\odot} = 6\pi u$$

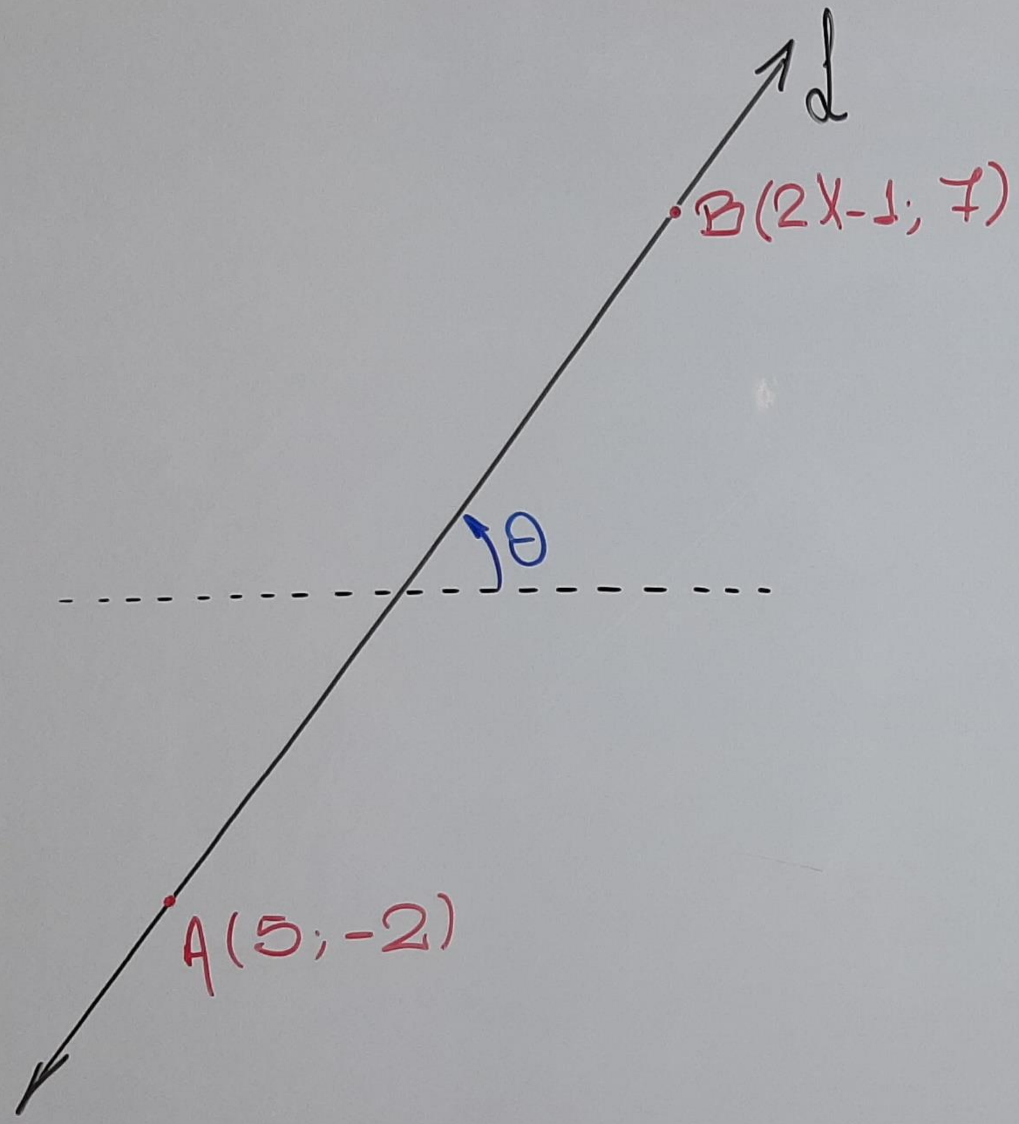
CLAVE D

Problema 15:

El ángulo de inclinación de una recta es tal que su coseno es 5/13. Si dicha recta pasa por los puntos A(5;-2) y B(2x-1;7) , calcular el valor de “x”.

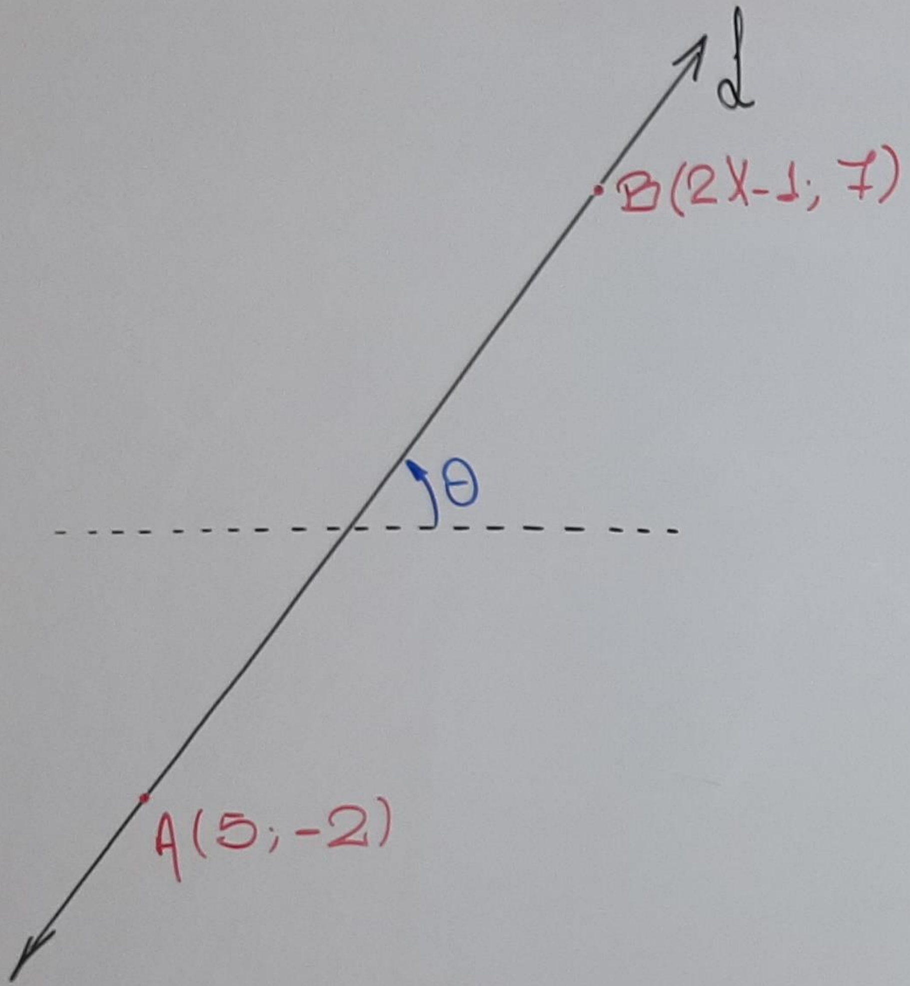
A) 31/8 B) 33/8 C) 35/8
D) 37/8 E) 39/8

15



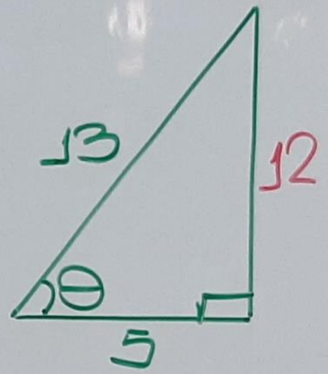
i) $\cos\theta = \dfrac{5}{13}$

15



i) $\cos\theta = \frac{5}{13} \to \cos\theta > 0$

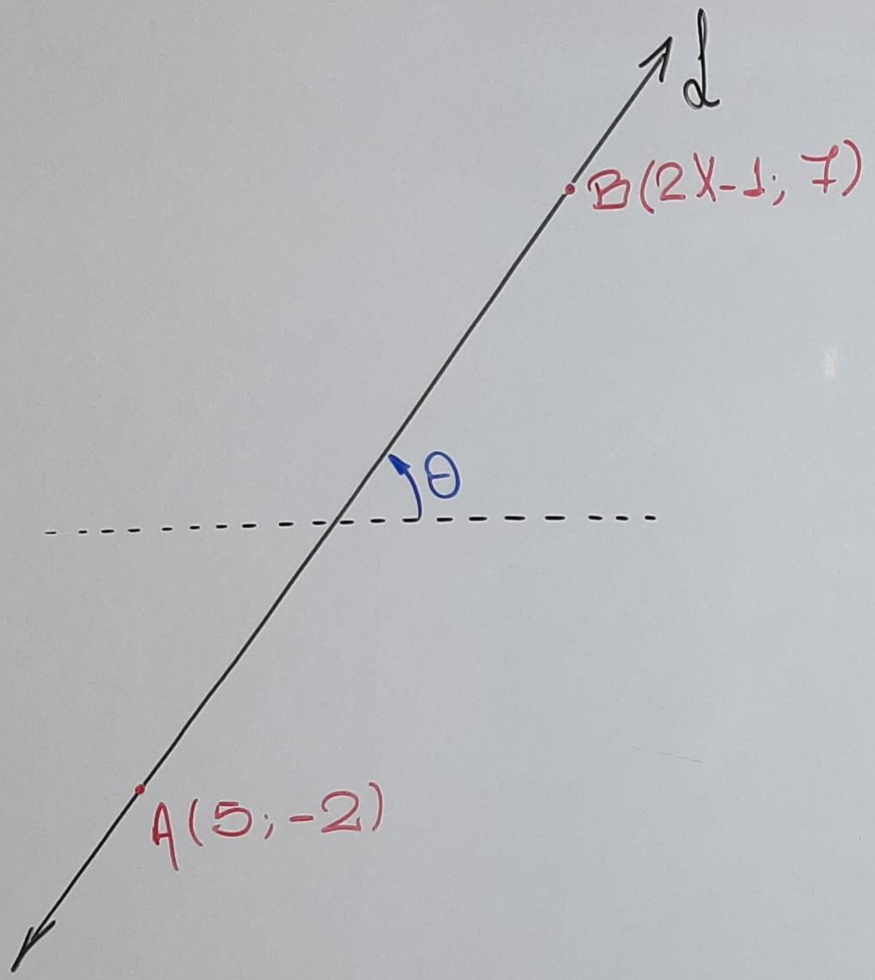
$0 \leq \theta \leq 180° \to \theta$: agudo



$\to \tan\theta = \frac{12}{5}$

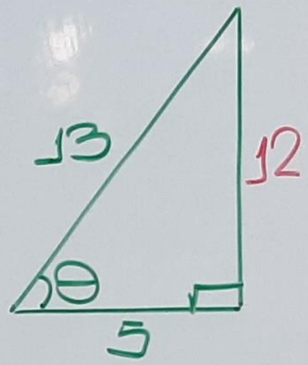
$\Rightarrow m = \frac{12}{5}$

15



i) $\cos\theta = \frac{5}{13}$ $\rightarrow$ $\cos\theta > 0$

$0 \leq \theta \leq 180°$ $\rightarrow$ θ : agudo



$\rightarrow \tan\theta = \frac{12}{5}$

$\Rightarrow m = \frac{12}{5}$

ii) $m = \tan\theta = \frac{\Delta y}{\Delta x}$

$$\frac{12}{5} = \frac{7-(-2)}{2x-1-5}$$

$$\overset{4}{\cancel{12}}(2x-6) = \cancel{45}^{15}$$

$\therefore x = \frac{39}{8}$

CLAVE E

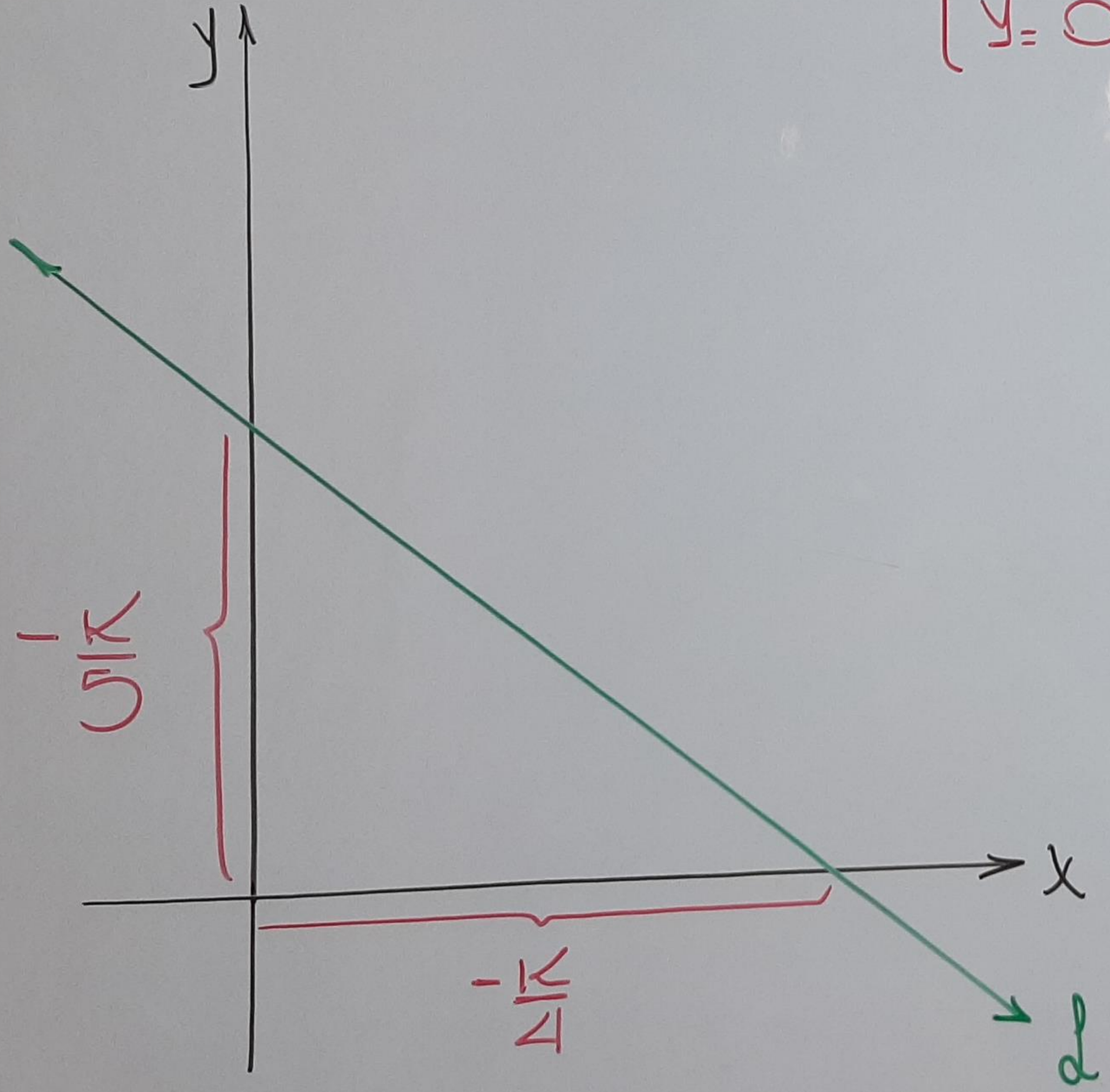
Problema 16:

Uno de los valores de "k", para que la recta: $4x + 5y + k = 0$, forme con los ejes coordenados de un triangulo de área $\frac{5}{2}\ u^2$ es:

A) -10
B) 9
C) -8
D) -9
E) 8

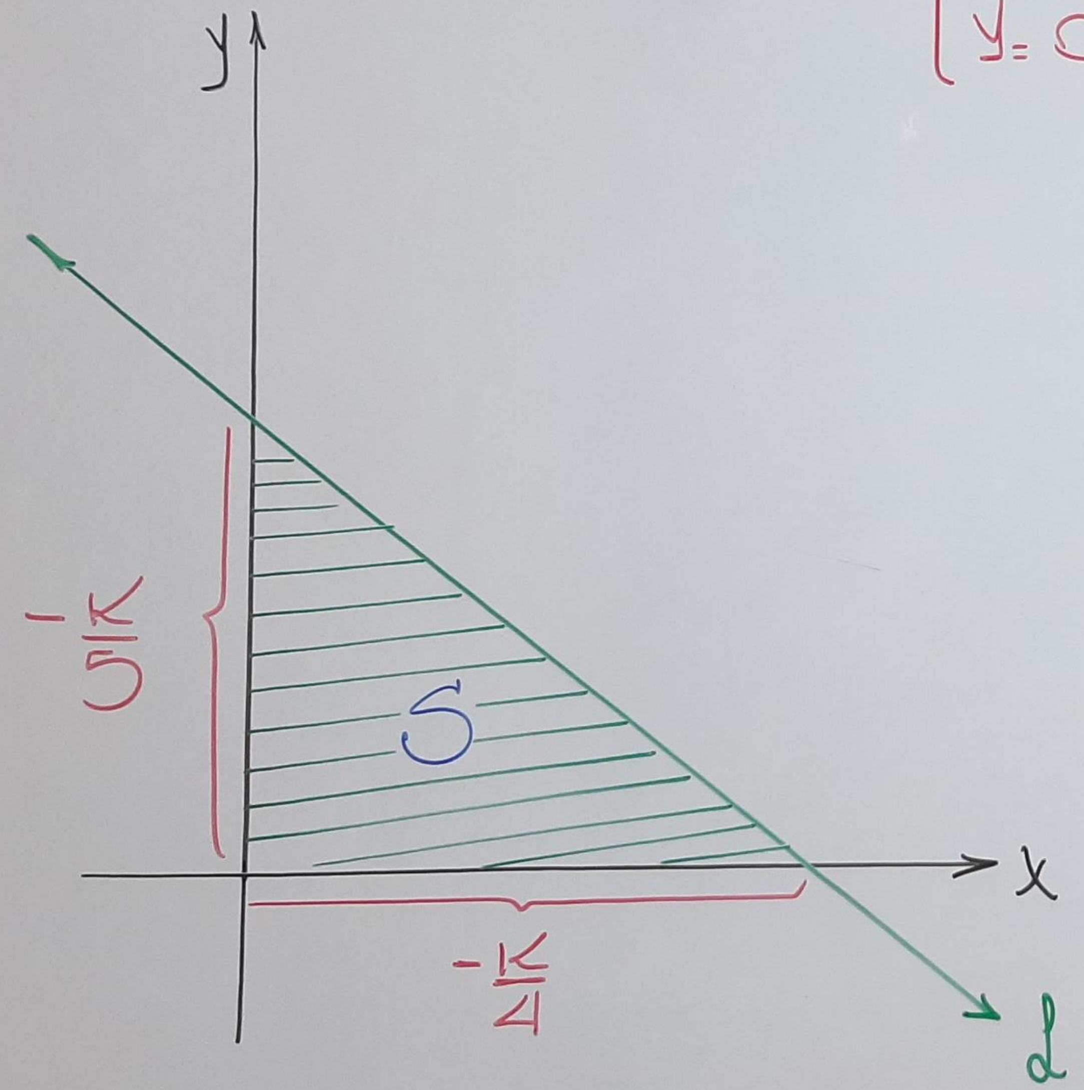
16

$$d: 4x+5y+k=0 \begin{cases} x=0 \rightsquigarrow y=-\dfrac{k}{5} \\ y=0 \rightsquigarrow x=-\dfrac{k}{4} \end{cases}$$



16

$\mathcal{L}: 4x + 5y + K = 0 \begin{cases} x = 0 \rightarrow y = -\dfrac{K}{5} \\ y = 0 \rightarrow x = -\dfrac{K}{4} \end{cases}$



$$S = \frac{5}{2} u^2$$

$$\frac{1}{2}\left(-\frac{K}{4}\right)\left(-\frac{K}{5}\right) = \frac{5}{2}$$

$$K^2 = 100$$

$$K = \pm 10$$

$$\therefore K = -10$$

CLAVE A

Problema 17:

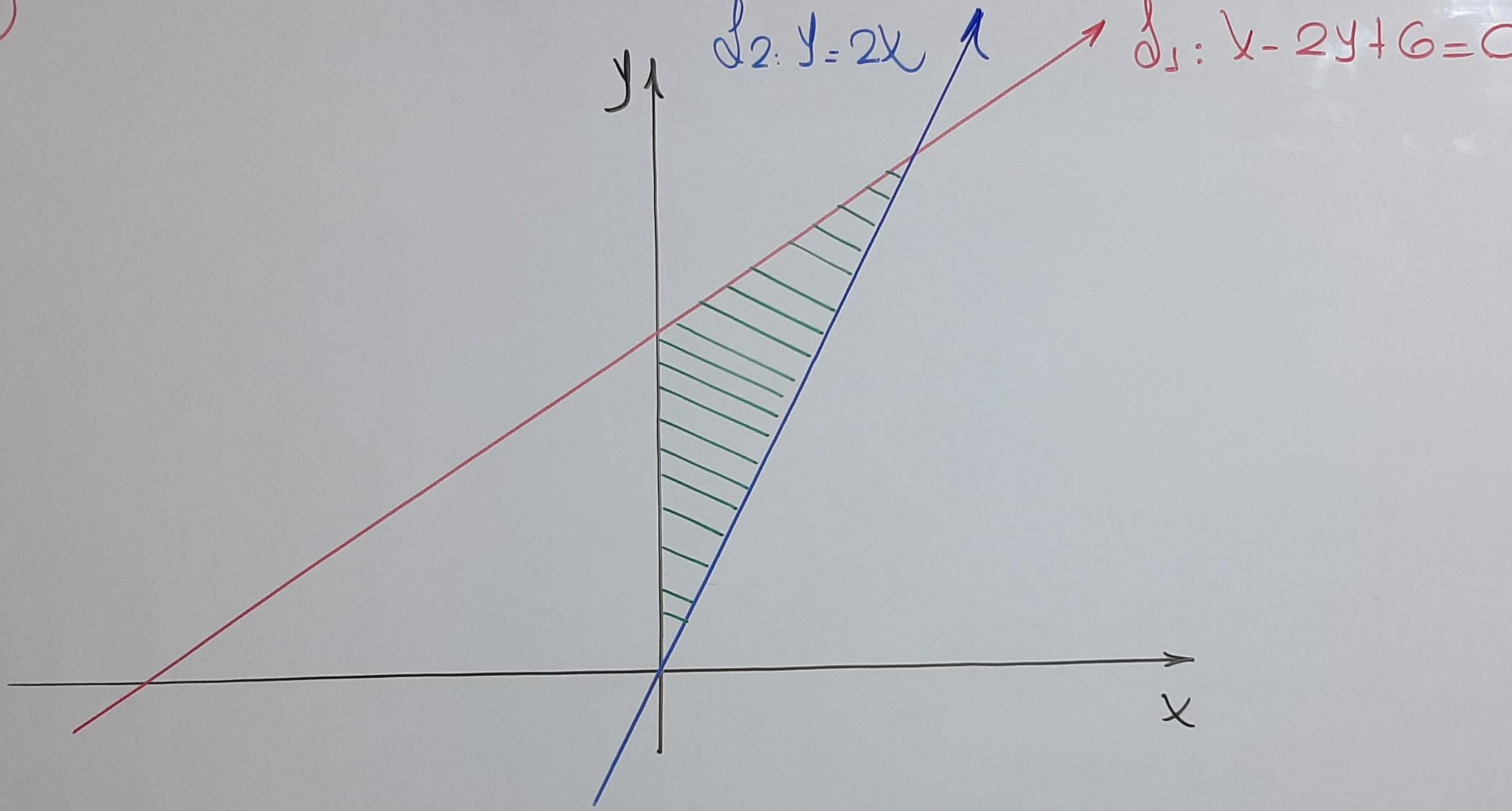
Calcular el área de la región triangular limitada por las rectas:

$$L_1: x - 2y + 6 = 0$$
$$L_2: 2x - y = 0$$

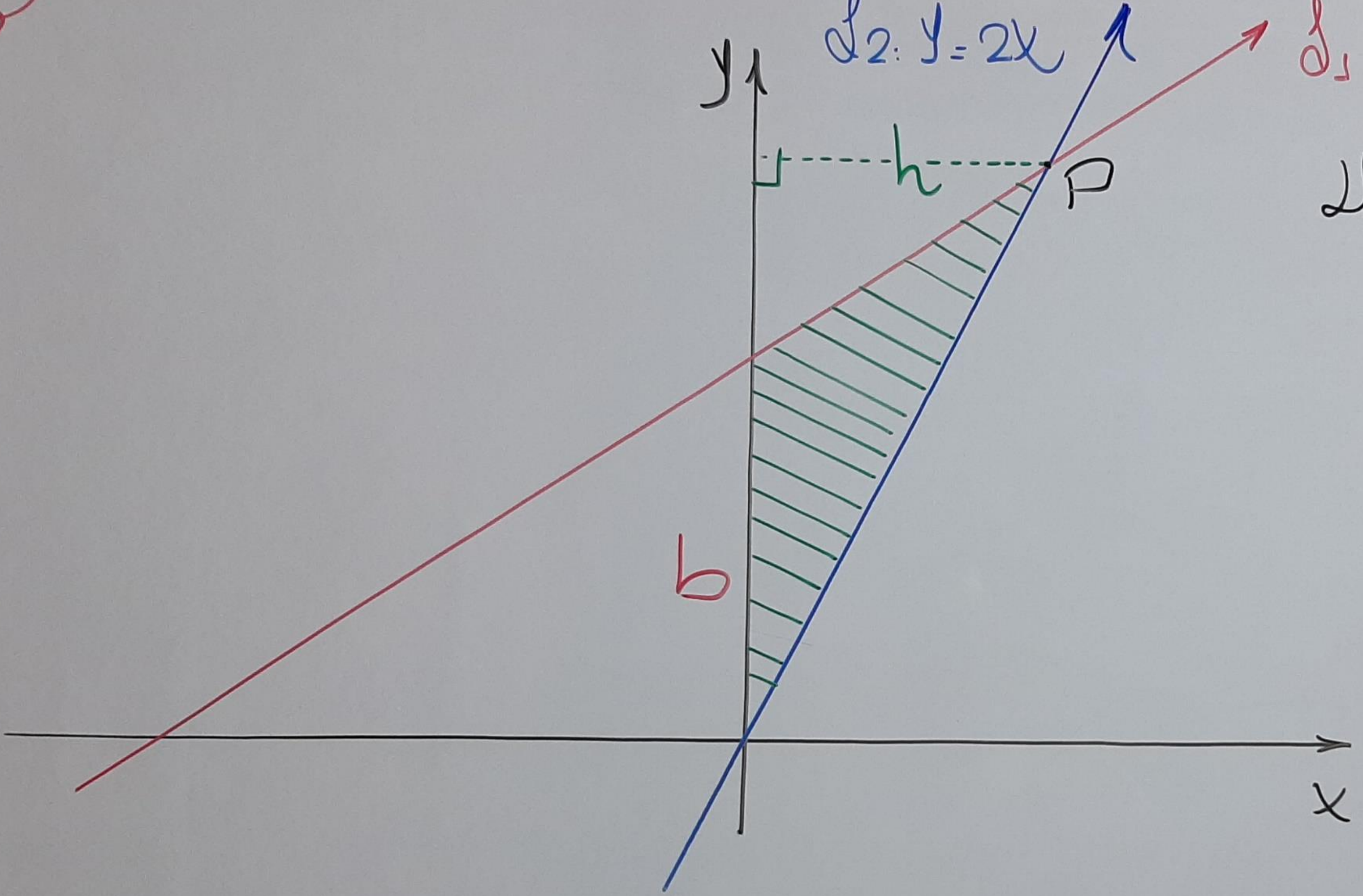
y el eje de las ordenadas.

A) $2\ u^2$
B) $1\ u^2$
C) $4\ u^2$
D) $5\ u^2$
E) $3\ u^2$

1f



17



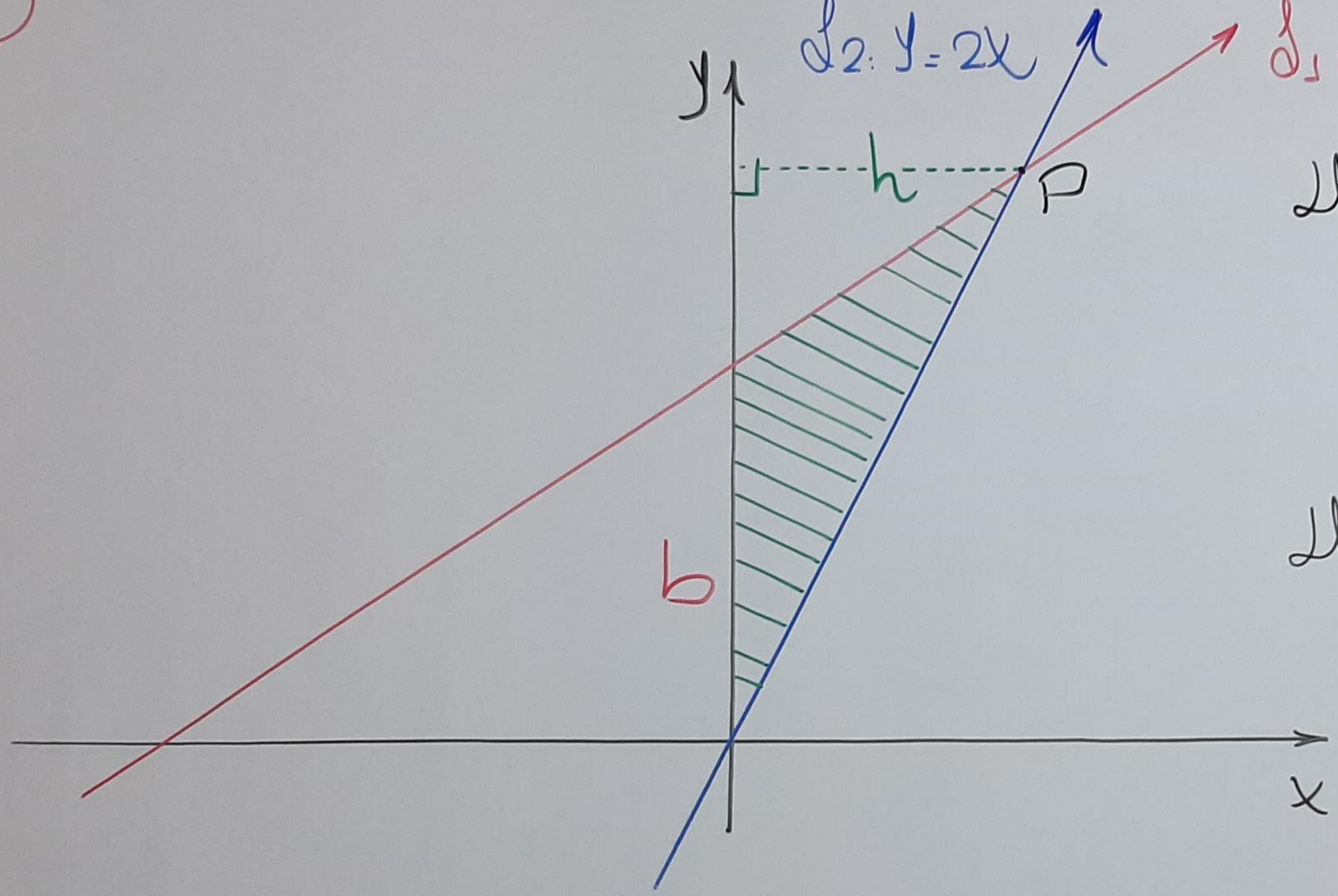
$\mathscr{L}_1: x - 2y + 6 = 0$

Hallando b: $x = 0$ en $\mathscr{L}_1$

$$0 - 2(b) + 6 = 0$$

$$b = 3$$

1f



Hallando b: $x = 0$ en ℓ_1

$$0 - 2(b) + 6 = 0$$

$$b = 3$$

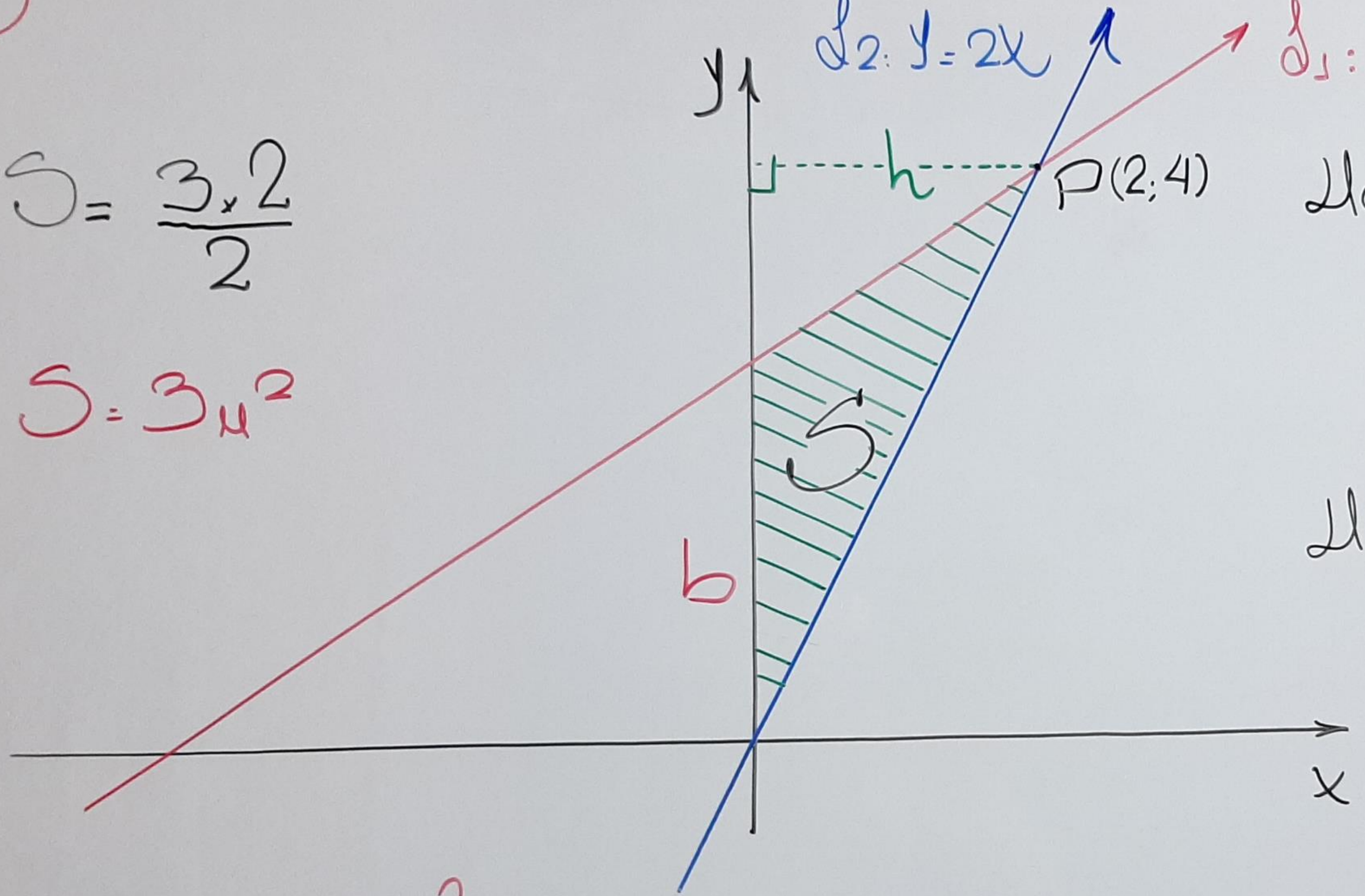
Hallando el punto P

$$\ell_1 \cap \ell_2 : \{P\}$$

$$y = \frac{x+6}{2} = 2x$$

$$x = 2 \rightarrow y = 4$$

17



$\mathcal{L}_1: x-2y+6=0$

Hallando b: $x=0$ en $\mathcal{L}_1$

$0-2(b)+6=0$

$b=3$

Hallando el punto P

$\mathcal{L}_1 \cap \mathcal{L}_2 : \{P\}$

$y=\frac{x+6}{2}=2x$

$x=2 \rightarrow y=4$

$\rightarrow h=2$

$S=\frac{3\times 2}{2}$

$\therefore S=3u^2$

CLAVE E

Problema 18:

Calcular la suma de coordenadas del punto de intersección de las rectas:

$$L_1: 3x + 2y - 16 = 0$$
$$L_2: 7x - 5y + 11 = 0$$

A) -3
B) 2
C) 7
D) 3
E) 5

18

$\mathcal{L}_1 : 3x + 2y - 16 = 0 \;\wedge\; \mathcal{L}_2 : 7x - 5y + 11 = 0$

Sea $\{P\} : \mathcal{L}_1 \cap \mathcal{L}_2$

18

$\mathscr{L}_1: 3x + 2y - 16 = 0 \wedge \mathscr{L}_2: 7x - 5y + 11 = 0$

Sea $\{P\}: \mathscr{L}_1 \cap \mathscr{L}_2$

$$y = \frac{16 - 3x}{2} = \frac{7x + 11}{5}$$

$x = 2$; $y = 5$

18

$\mathscr{L}_1: 3x + 2y - 16 = 0 \wedge \mathscr{L}_2: 7x - 5y + 11 = 0$

Sea $\{P\}: \mathscr{L}_1 \cap \mathscr{L}_2$

$$y = \frac{16 - 3x}{2} = \frac{7x + 11}{5}$$

$x = 2$; $y = 5$

$\Rightarrow P(2;5)$

$\therefore$ Suma $= 7$

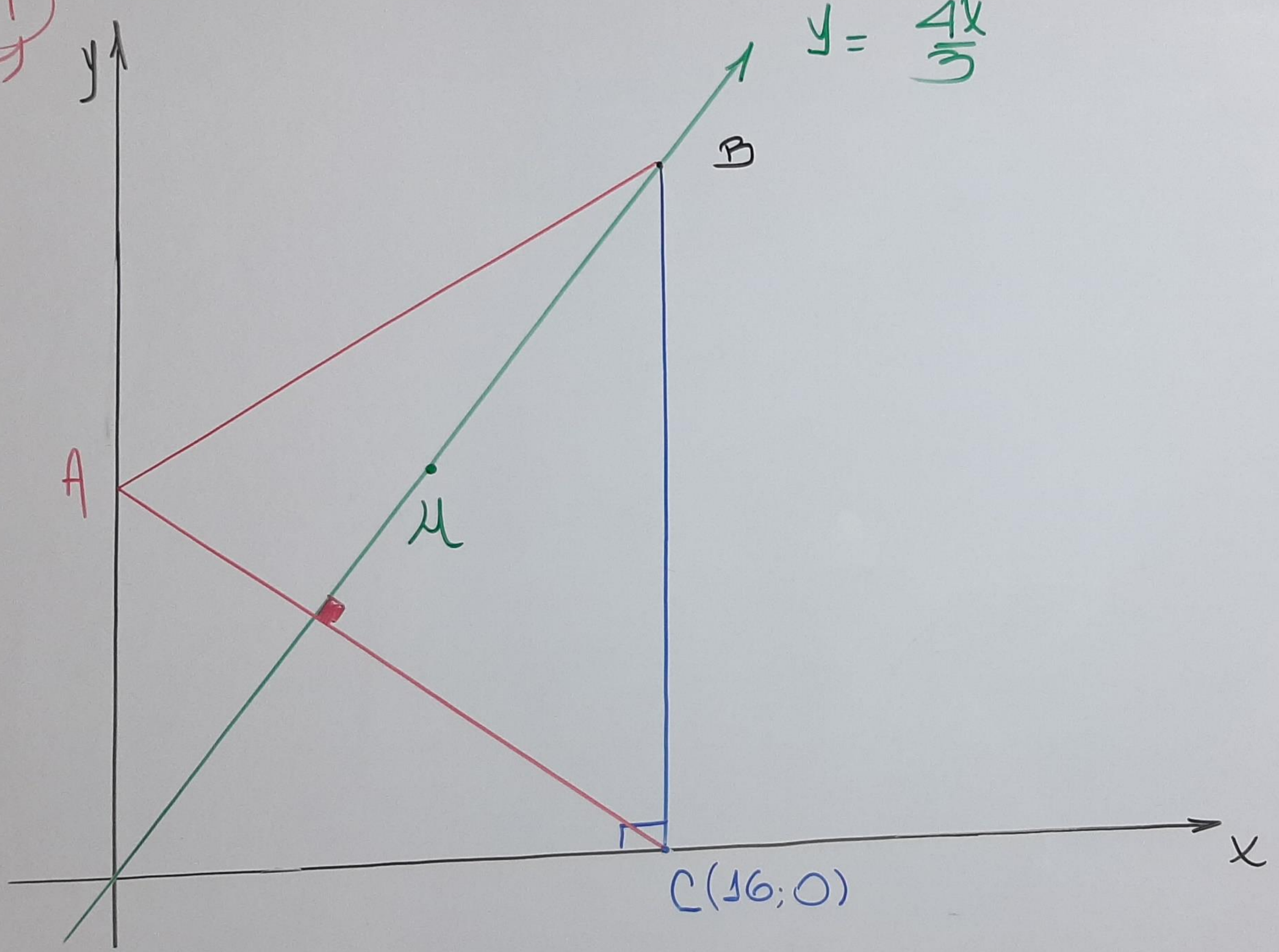
CLAVE C

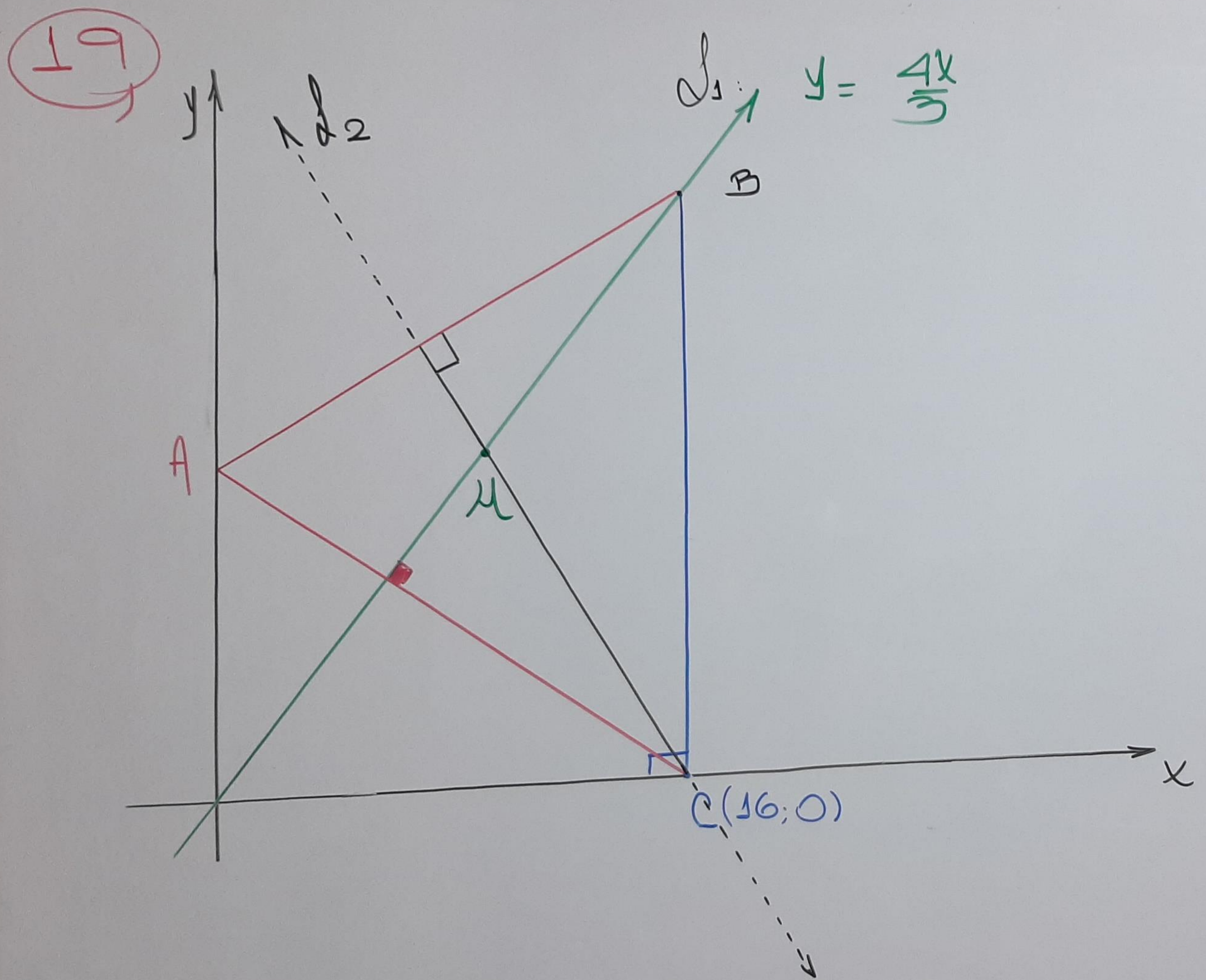
Problema 19:

En un triangulo ABC, de ortocentro H, ($A \in$ eje Y) B y H pertenecen a la recta : $L: 3y - 4x = 0$, $\overline{BC}$ es perpendicular al eje X,B pertenece el primer cuadrante; C(16;0). Calcular la ecuación de la recta que contiene a CH.

A) $12x + 7y + 192 = 0$
B) $12x - 7y + 192 = 0$
C) $12x + 7y - 192 = 0$
D) $12x - 7y - 192 = 0$
E) $6x + 7y + 192 = 0$

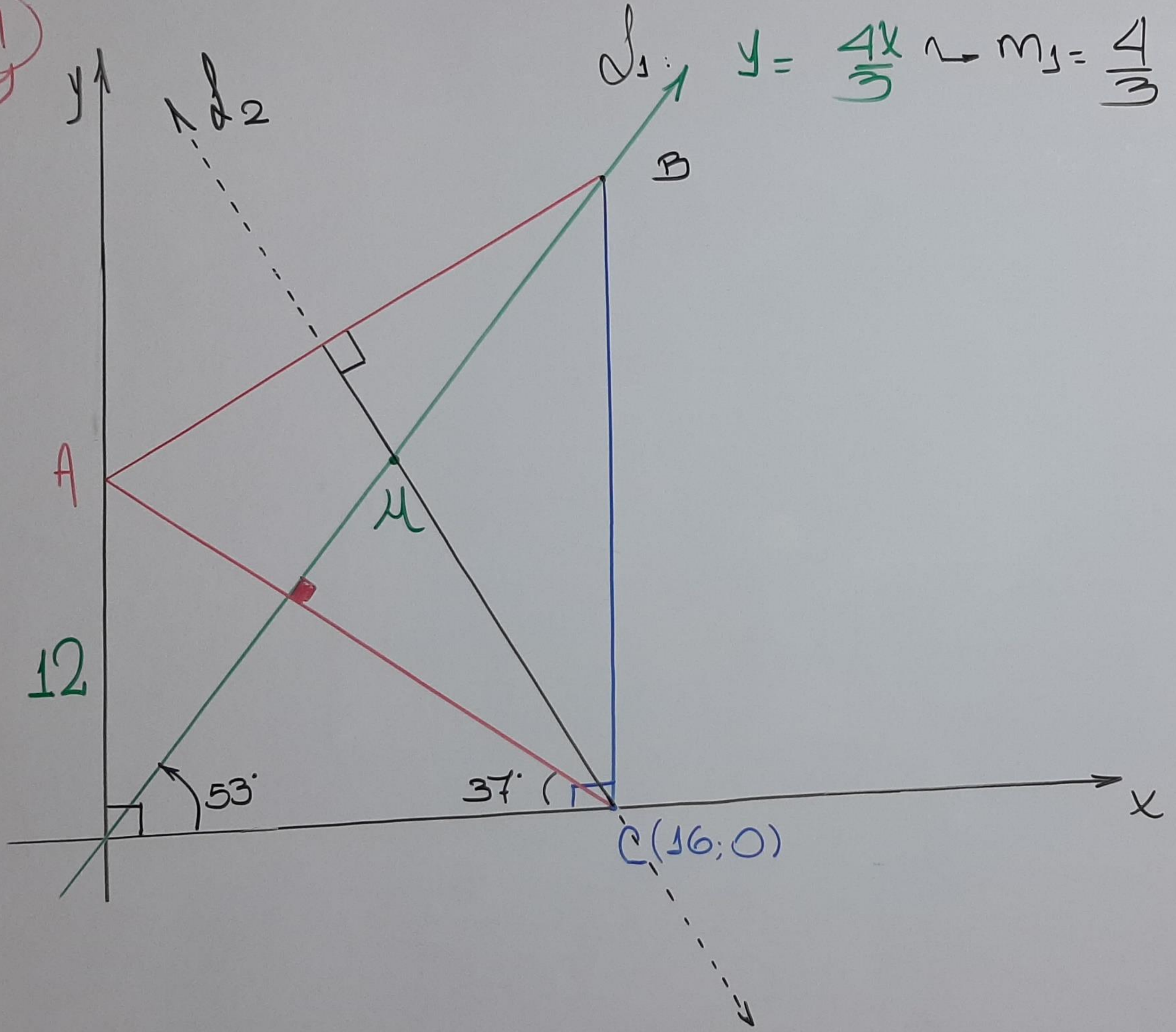
19





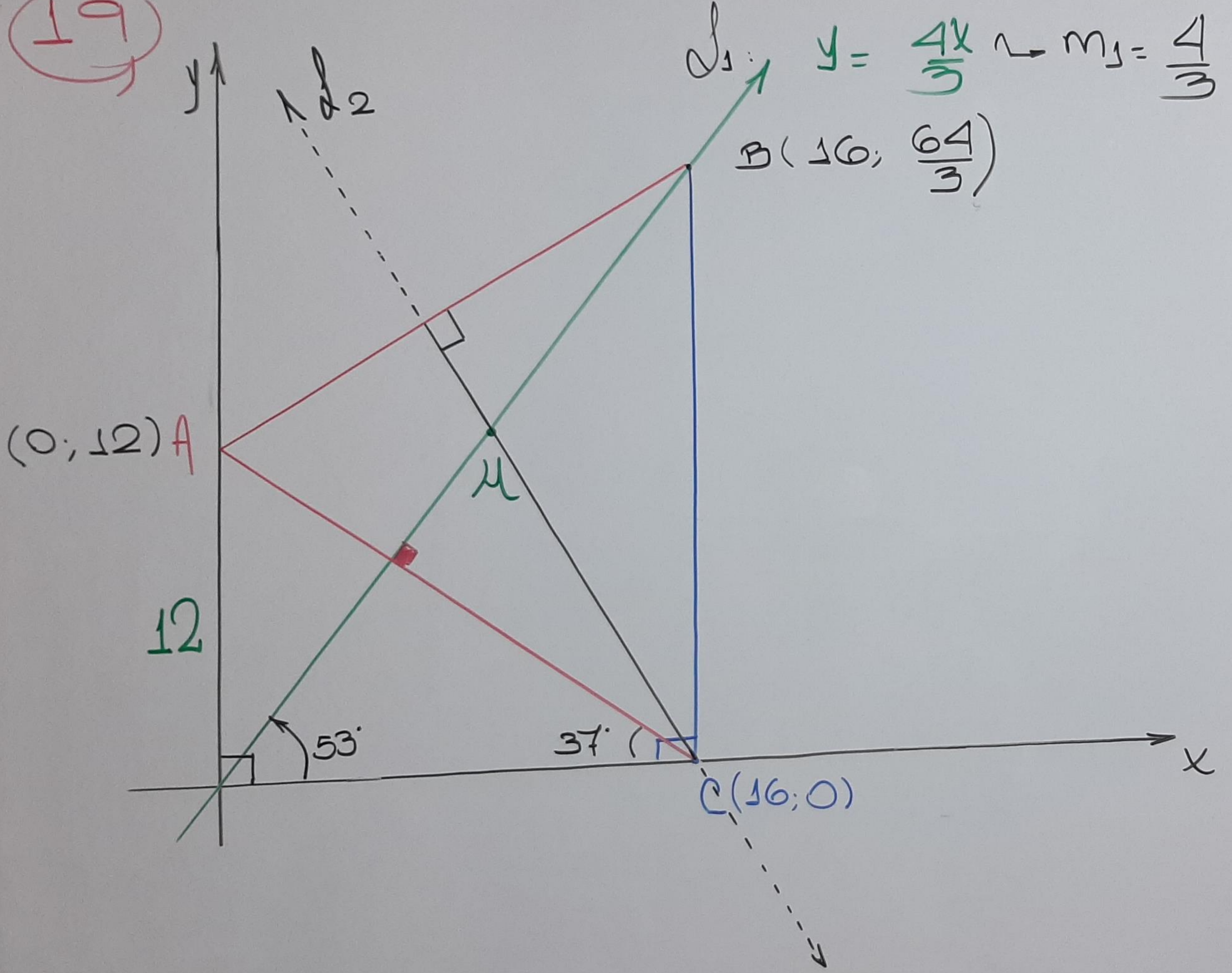
19
y
d_2
d_1 :
$y = \frac{4x}{3}$
B
A
M
x
C(16;0)

19

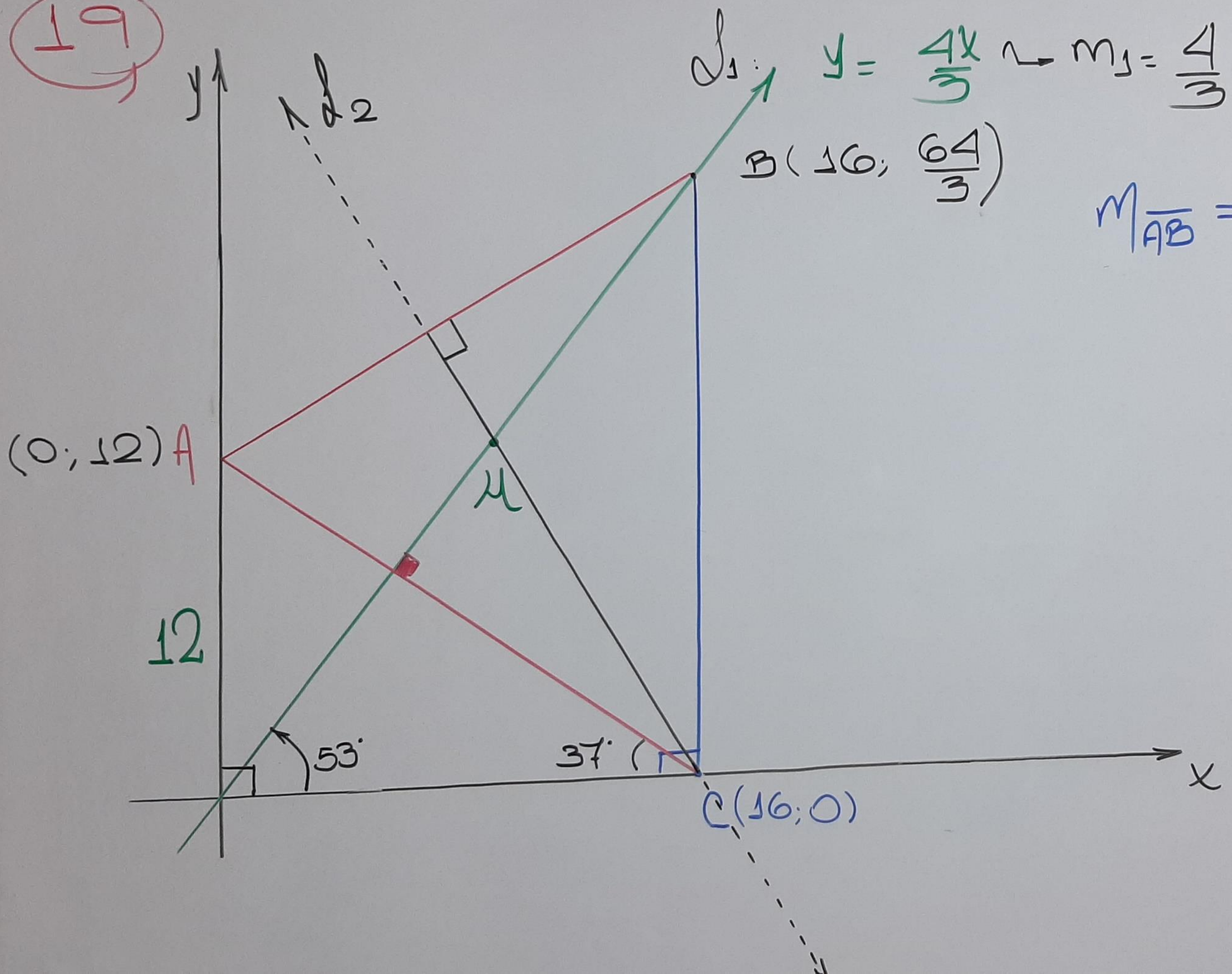


$L_1 : y = \frac{4x}{3} \rightsquigarrow m_1 = \frac{4}{3}$
L_2
y
B
A
M
12
53°
37°
C(16;0)
x

19


y
x
L_1: $y = \frac{4x}{3} \rightarrow m_1 = \frac{4}{3}$
L_2
$B(16; \frac{64}{3})$
$(0; 12)$ A
M
12
53°
37°
$C(16; 0)$

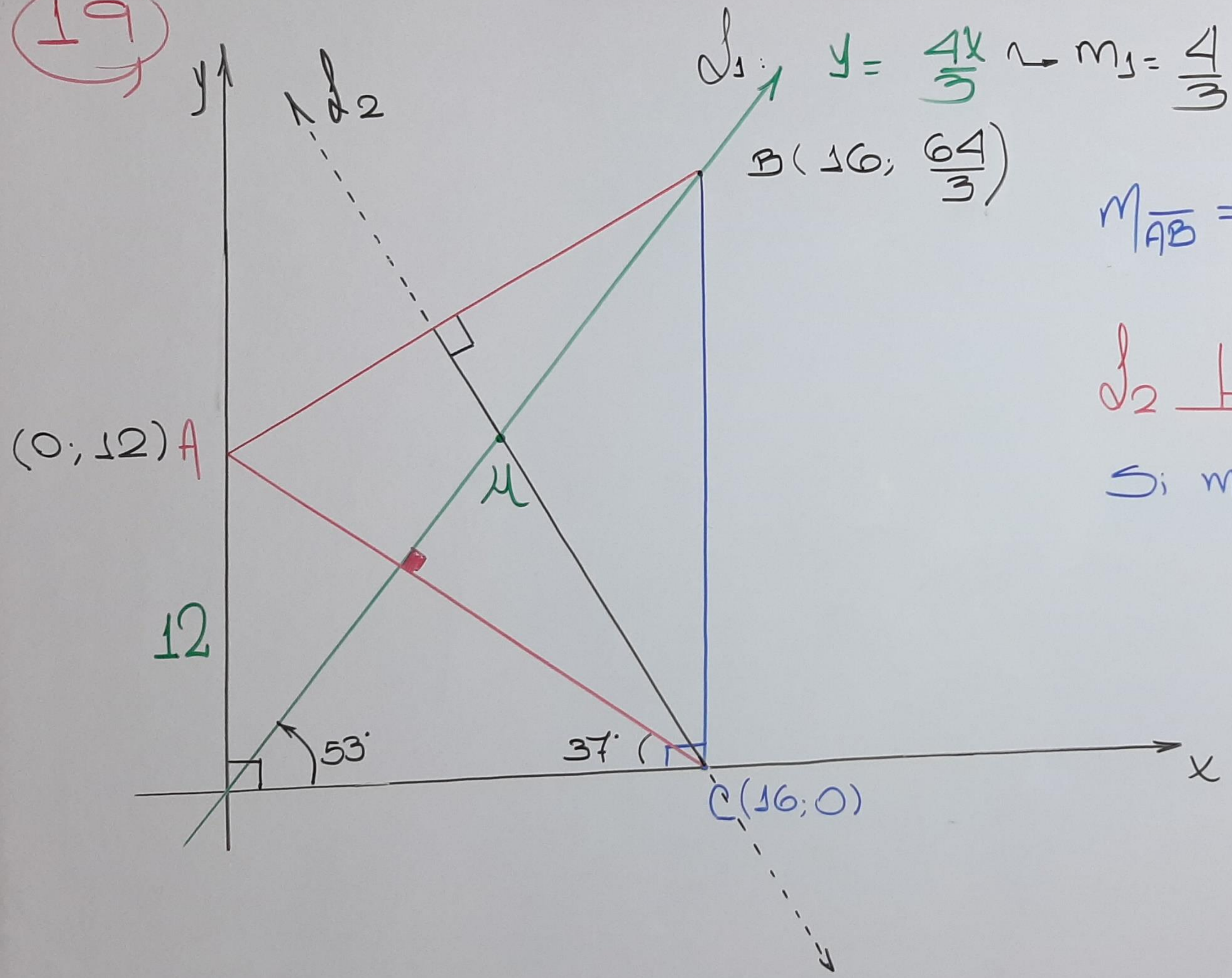
19



$$y = \frac{4x}{3} \rightarrow m_1 = \frac{4}{3}$$

$$m_{\overline{AB}} = \frac{\frac{64}{3} - 12}{16 - 0} = \frac{7}{12}$$

19

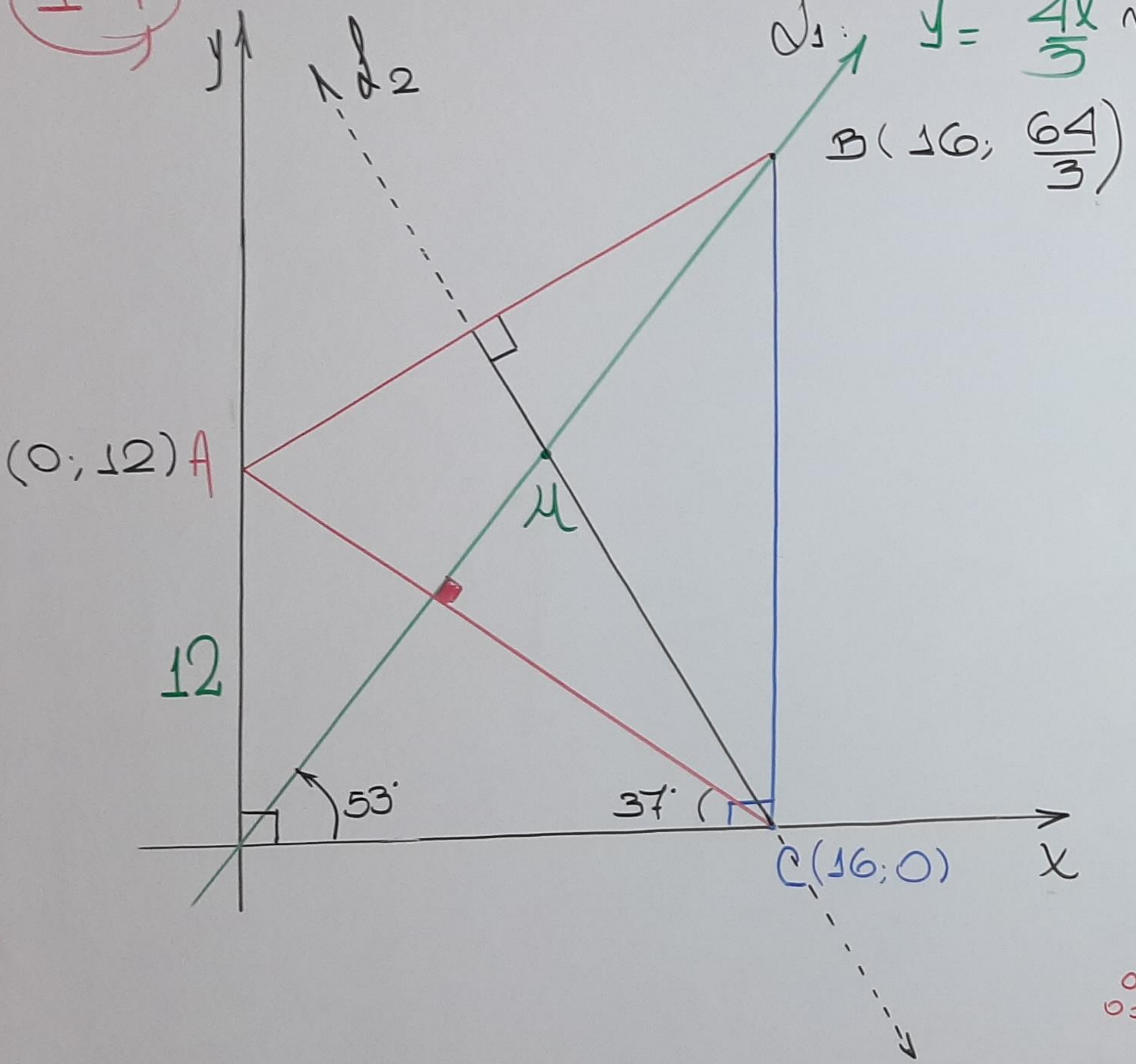


$$m_{\overline{AB}} = \frac{\frac{64}{3} - 12}{16 - 0} = \frac{7}{12}$$

$\ell_2 \perp \overline{AB}$:

Si $m_{\overline{AB}} = \frac{7}{12} \to m_2 = -\frac{12}{7}$

19



$\ell_1: \; y = \frac{4x}{3} \rightarrow m_1 = \frac{4}{3}$

i) $m_{\overline{AB}} = \dfrac{\frac{64}{3} - 12}{16 - 0} = \dfrac{7}{12}$

ii) $\ell_2 \perp \overline{AB}$:

Si $m_{\overline{AB}} = \frac{7}{12} \rightarrow m_2 = -\frac{12}{7}$

✓ $y - y_0 = m(x - x_0)$

$y - 0 = -\frac{12}{7}(x - 16)$

$7y = -12x + 192$

$\therefore \; \ell_2: \; 12x + 7y - 192 = 0$

CLAVE C

Problema 20:

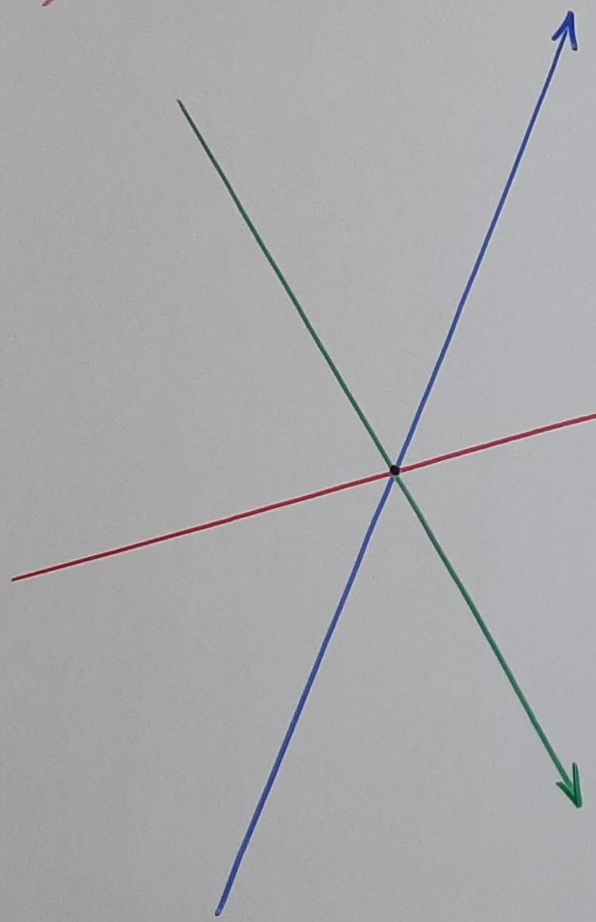
¿Que valor debe tener "m" para que la recta $y = mx - 7$ pase por la intersección de las rectas: $y = 2x - 4$; $y = 5x - 13$

A) 0 B) 1 C) 2

D) 3 E) 4

20

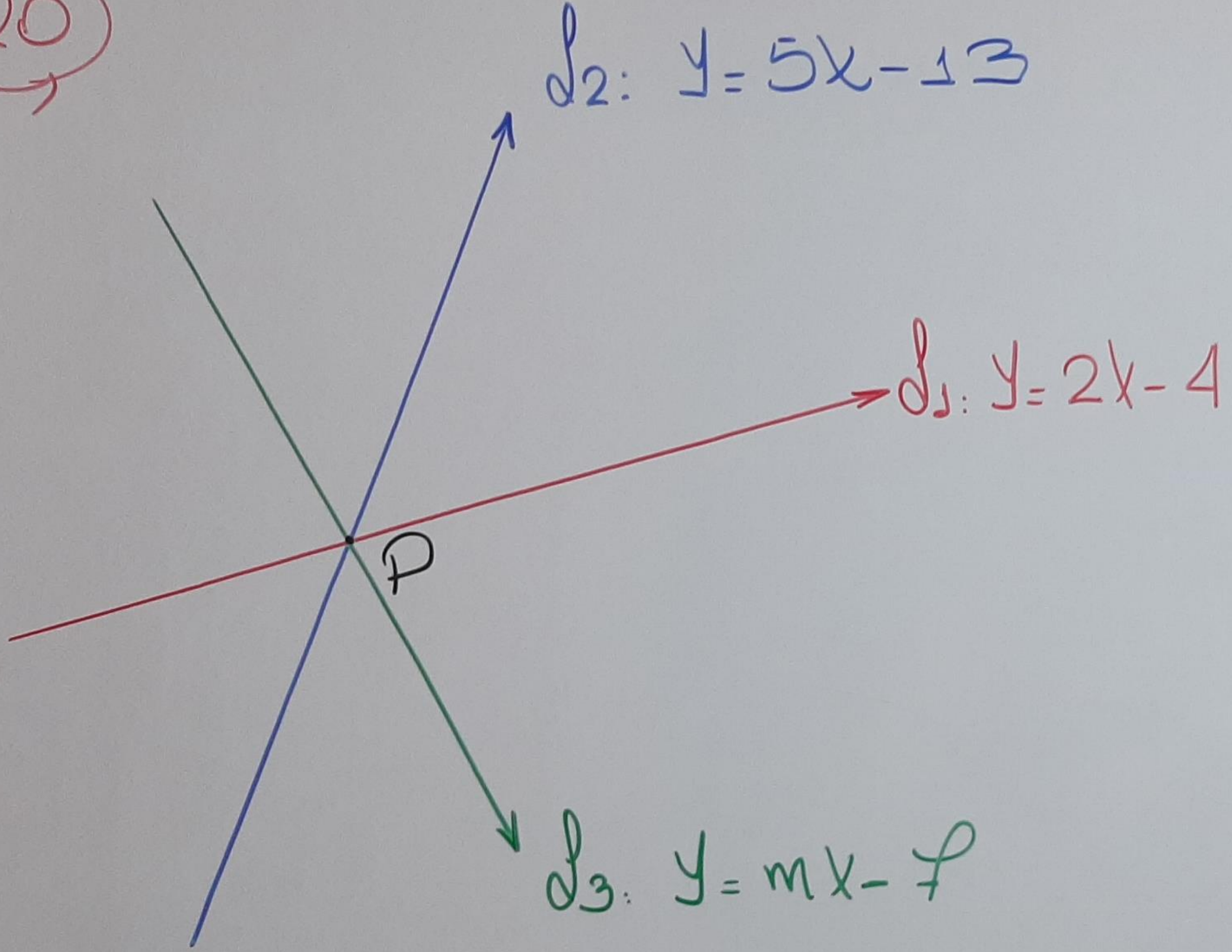
$d_2: y = 5x - 13$



$d_1: y = 2x - 4$

$d_3: y = mx - 7$

20

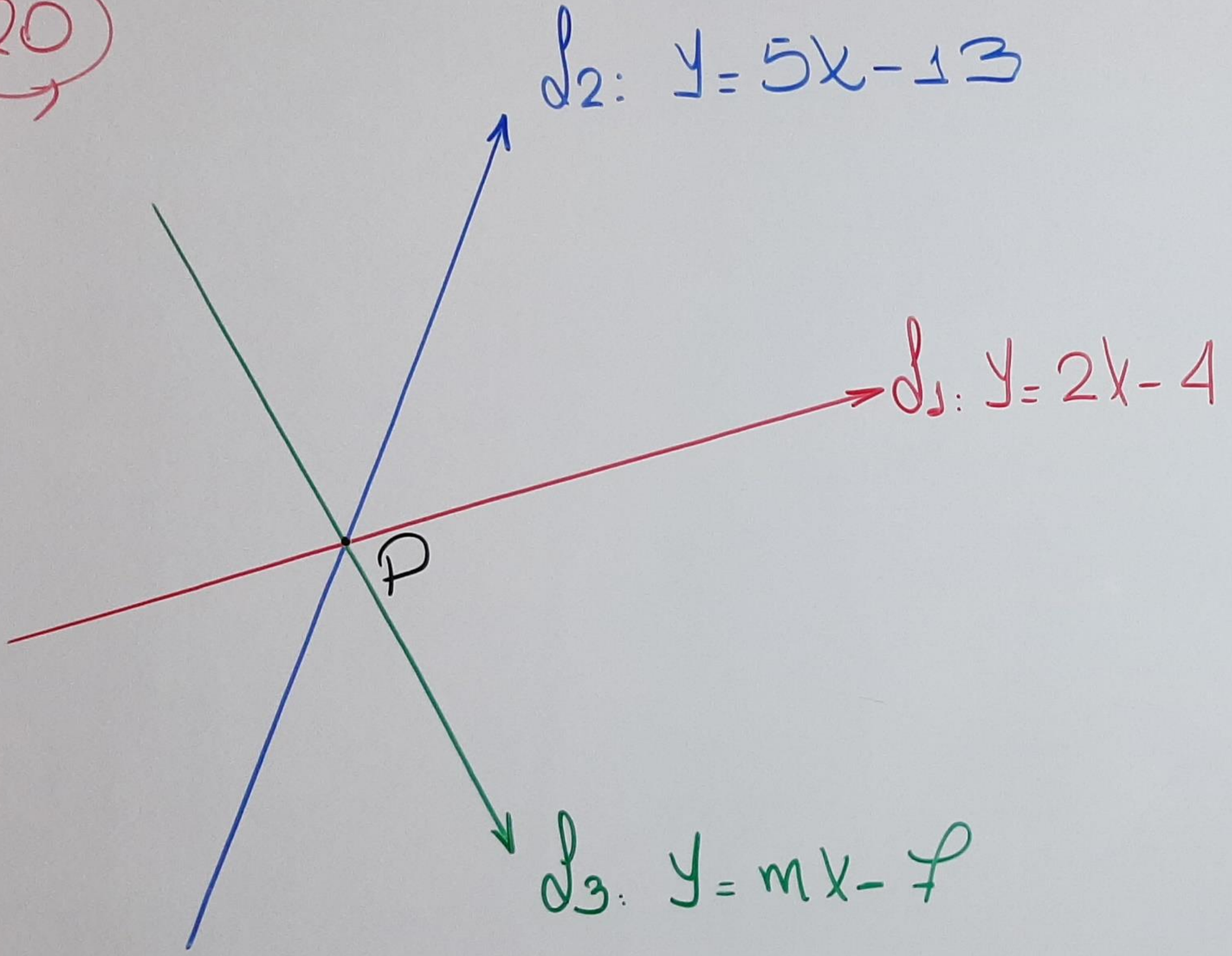


Sea: $\{P\} = \ell_1 \cap \ell_2$

$2x - 4 = 5x - 13$

$\underline{x = 3} \rightarrow \underline{y = 2}$

20



✓ Sea: $\{P\} = \mathscr{L}_1 \cap \mathscr{L}_2$

$$2x - 4 = 5x - 13$$

$$\underline{x = 3} \wedge \underline{y = 2}$$

✓ $P(3;2) \in \mathscr{L}_3: y = mx - 7$

$$2 = m(3) - 7$$

$$\therefore m = 3$$

CLAVE D

Adicional 1:

La recta trazada por A(2;6) y C(5;-2) es tangente en el punto “A” a una circunferencia trazada por B(3;9). Hallar las coordenadas del centro de la circunferencia.

A) $\left(\frac{74}{17};\frac{117}{17}\right)$

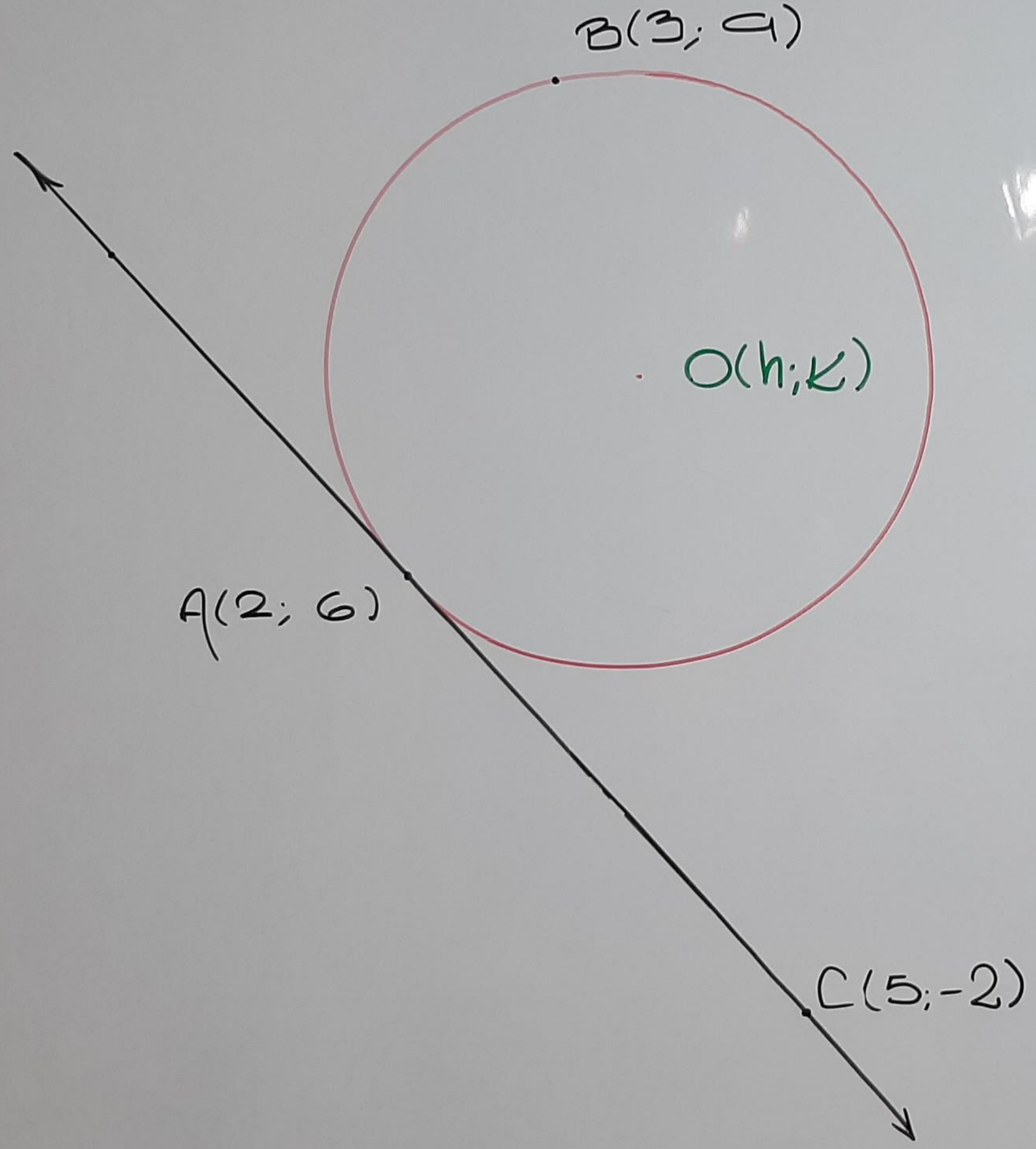
B) $\left(\frac{24}{17};\frac{127}{17}\right)$

C) $\left(\frac{37}{17};\frac{117}{17}\right)$

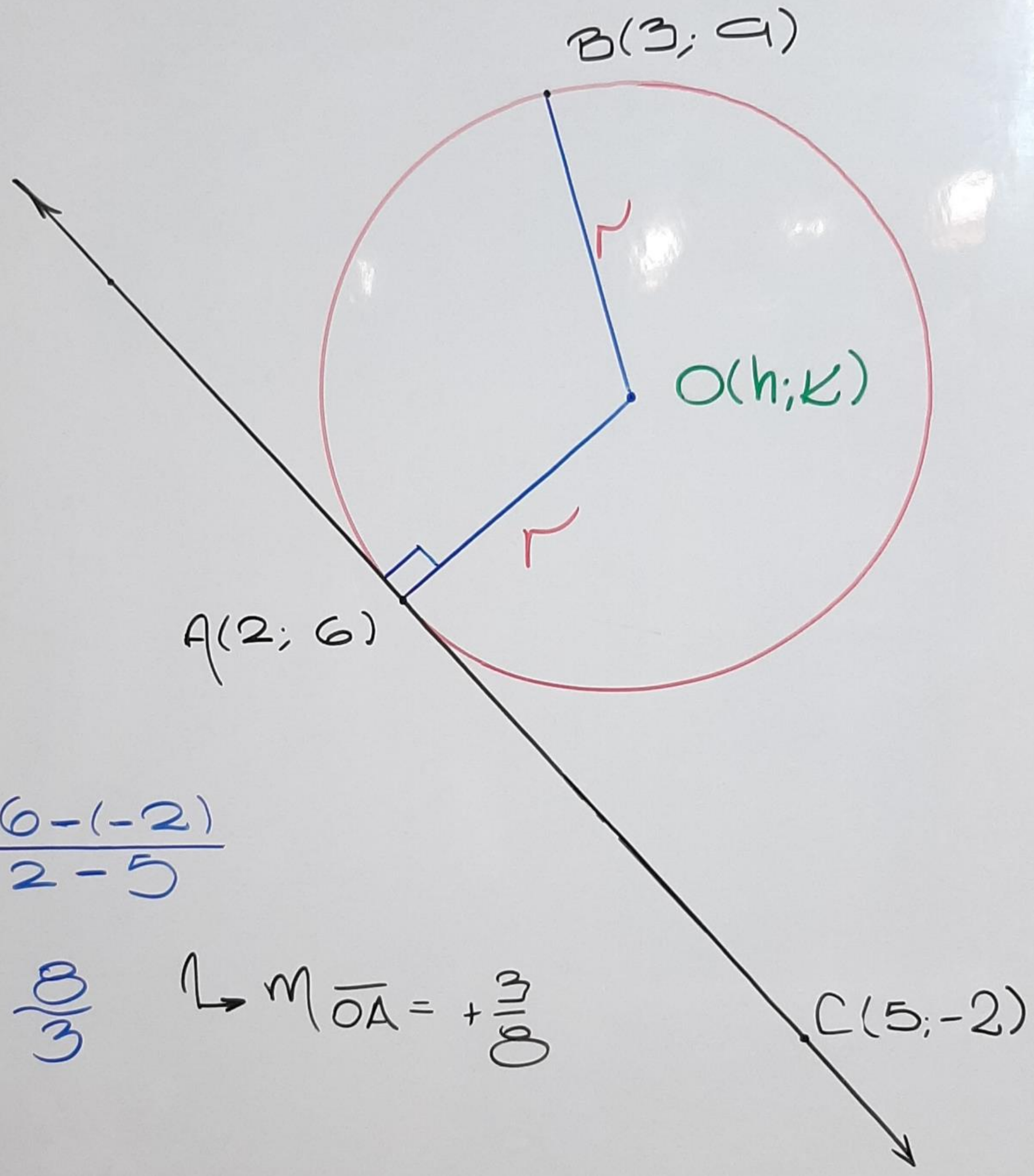
D) $\left(\frac{74}{17};\frac{119}{17}\right)$

E) $\left(\frac{37}{17};\frac{111}{17}\right)$

A1



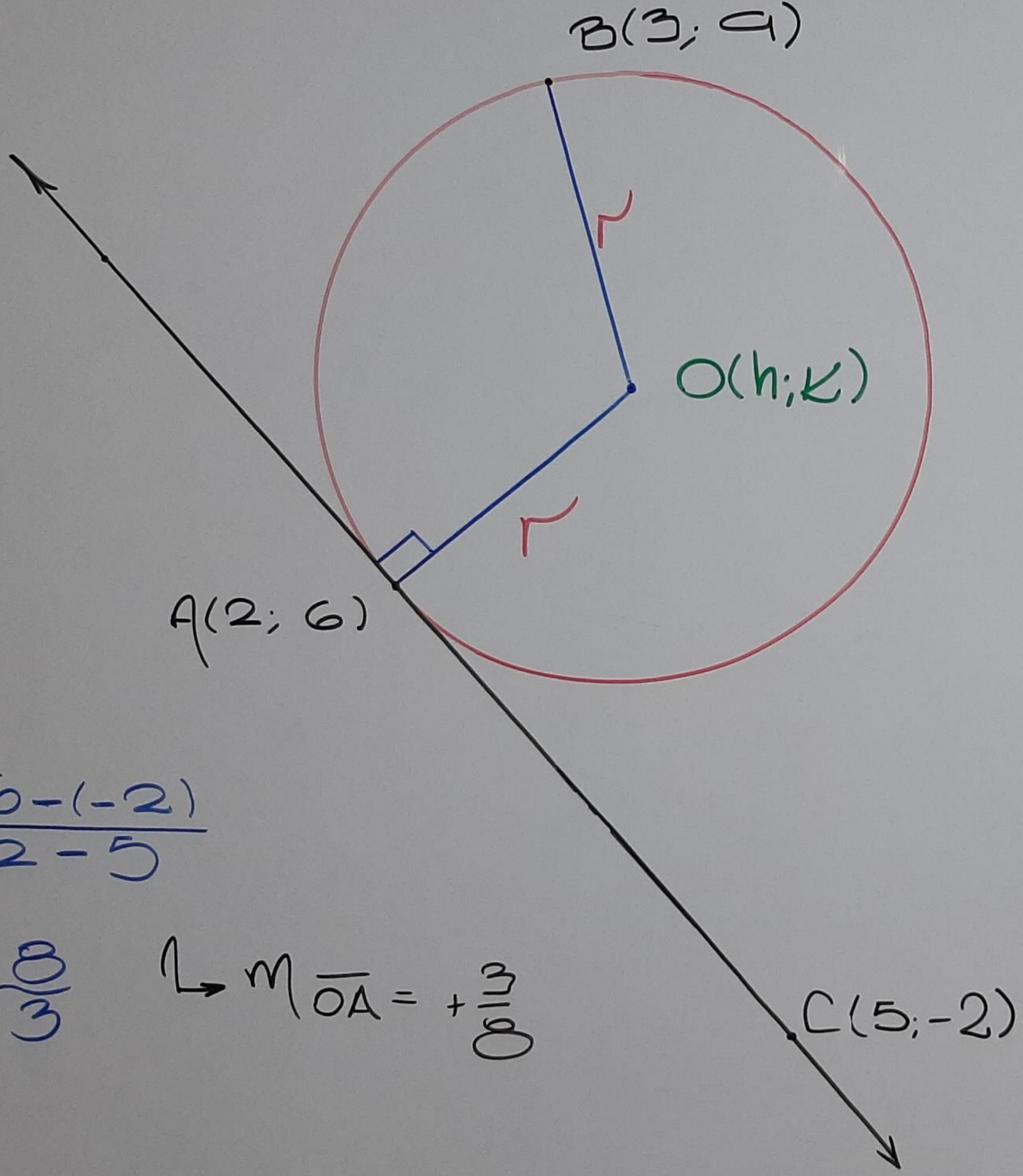
A1



$$m_{\overline{AC}} = \frac{6-(-2)}{2-5}$$

$$m_{\overline{AC}} = -\frac{8}{3} \quad \rightarrow m_{\overline{OA}} = +\frac{3}{8}$$

A1



$$m_{\overline{AC}} = \frac{6-(-2)}{2-5}$$

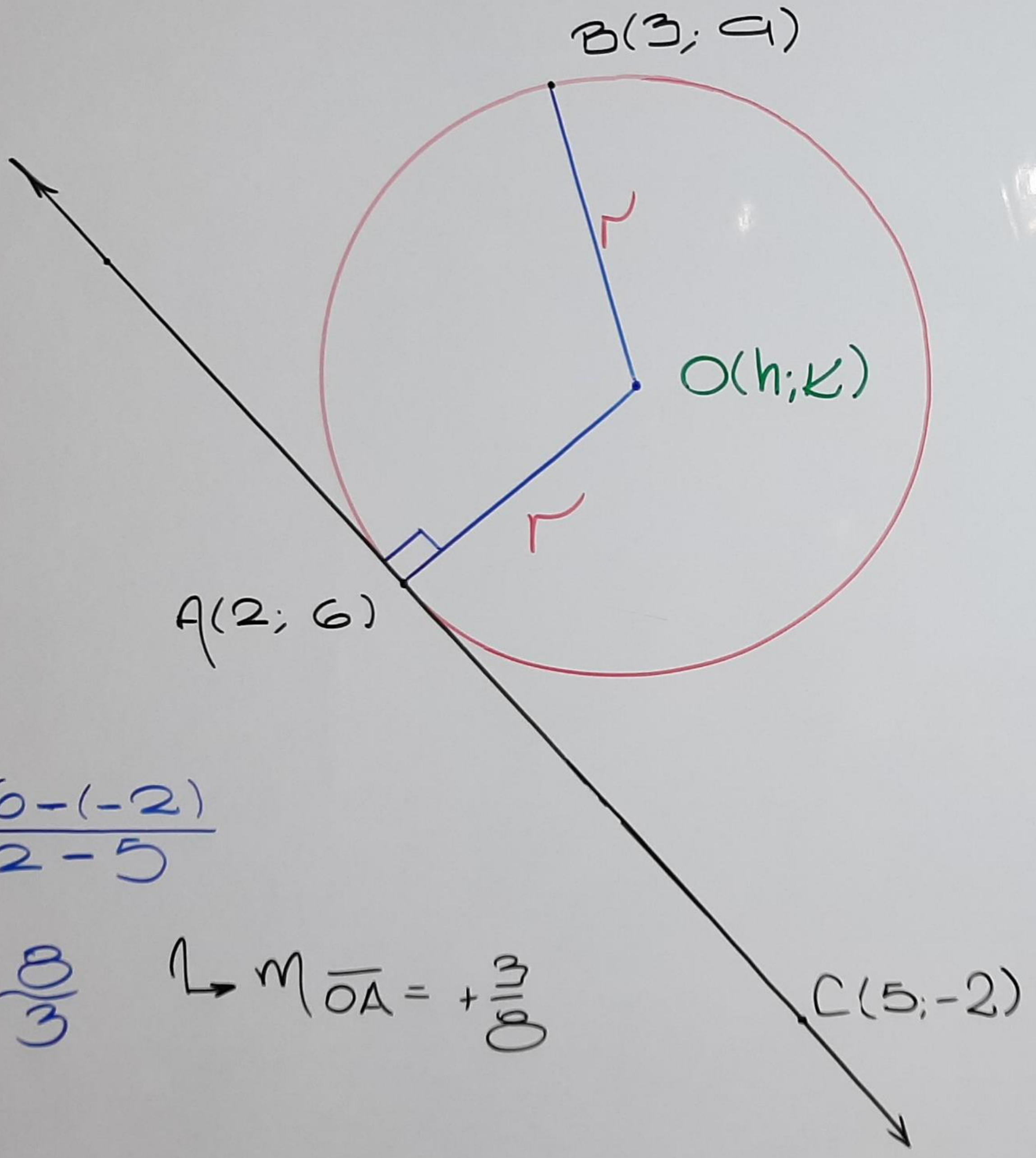
$$m_{\overline{AC}} = -\frac{8}{3} \quad \to m_{\overline{OA}} = +\frac{3}{8}$$

$$m_{\overline{OA}} = \frac{k-6}{h-2} = \frac{3}{8}$$

$$8k - 48 = 3h - 6$$

$$8k = 42 + 3h \quad \ldots \quad (\mathrm{I})$$

A1



$$m_{\overline{AC}} = \frac{6-(-2)}{2-5}$$

$$m_{\overline{AC}} = -\frac{8}{3} \rightarrow m_{\overline{OA}} = +\frac{3}{8}$$

$$m_{\overline{OA}} = \frac{k-6}{h-2} = \frac{3}{8}$$

$$8k - 48 = 3h - 6$$

$$8k = 42 + 3h \quad \ldots (\mathrm{I})$$

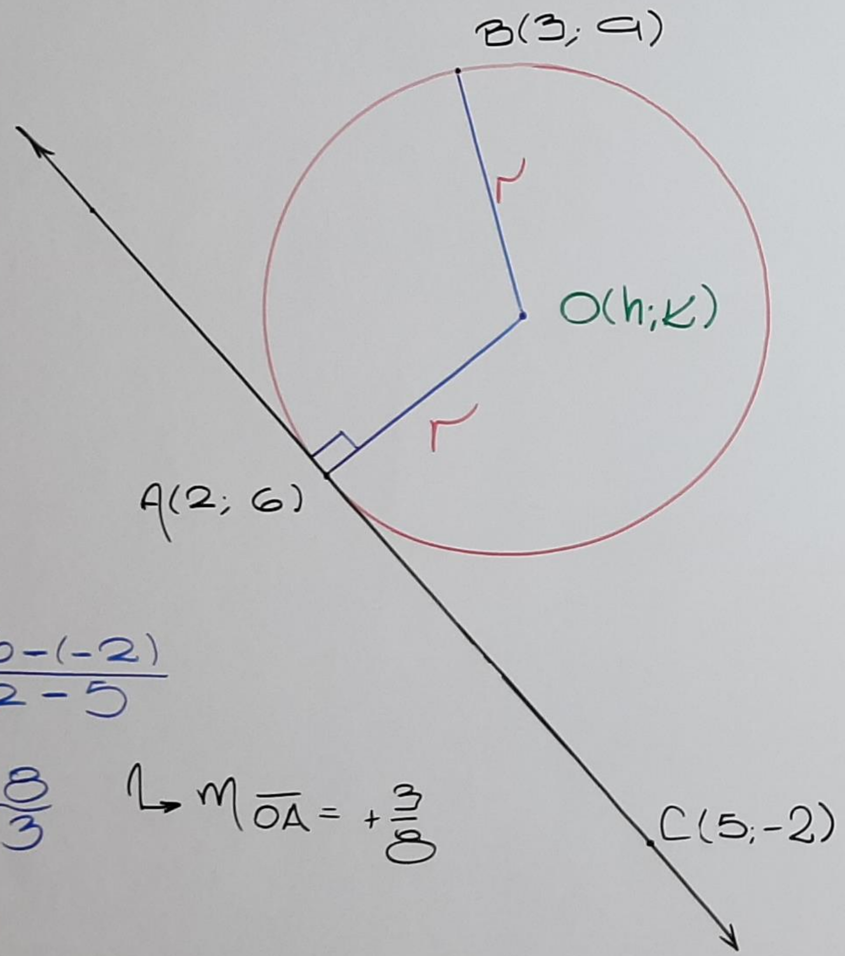
$$(h-2)^2 + (k-6)^2 = (h-3)^2 + (k-9)^2$$

$$(h-2)^2 - (h-3)^2 = (k-9)^2 - (k-6)^2$$

$$(2h-5)(1) = (2k-15)(-3)$$

$$h = 25 - 3k \quad \ldots (\mathrm{II})$$

A1



$m_{\overline{AC}} = \dfrac{6-(-2)}{2-5}$

$m_{\overline{AC}} = -\dfrac{8}{3}$ ↳ $m_{\overline{OA}} = +\dfrac{3}{8}$

✓ $m_{\overline{OA}} = \dfrac{k-6}{h-2} = \dfrac{3}{8}$

$8k - 48 = 3h - 6$

$8k = 42 + 3h \quad \ldots (I)$

✓ $(h-2)^2 + (k-6)^2 = (h-3)^2 + (k-9)^2$

$(h-2)^2 - (h-3)^2 = (k-9)^2 - (k-6)^2$

$(2h-5)(1) = (2k-15)(-3)$

$h = 25 - 3k \quad \ldots (II)$

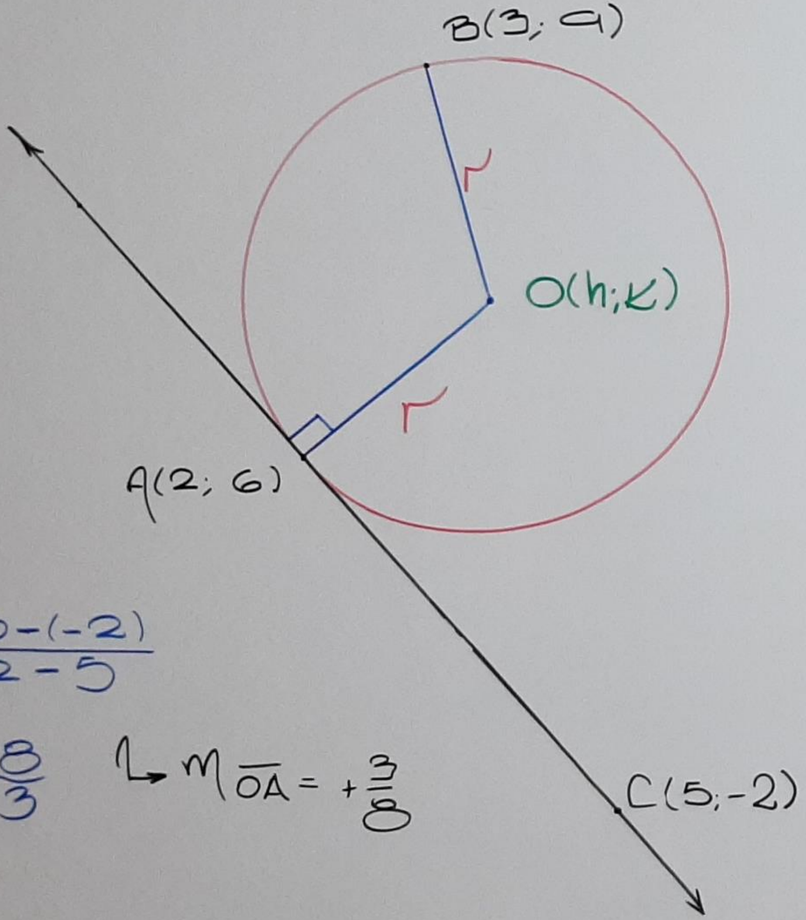
De I y II:

$8k = 42 + 3(25 - 3k)$

$17k = 117$

$k = \dfrac{117}{17} \rightarrow h = \dfrac{74}{17}$

A1



$m_{\overline{AC}} = \dfrac{6-(-2)}{2-5}$

$m_{\overline{AC}} = -\dfrac{8}{3}$ $\rightarrow m_{\overline{OA}} = +\dfrac{3}{8}$

✓ $m_{\overline{OA}} = \dfrac{k-6}{h-2} = \dfrac{3}{8}$

$8k - 48 = 3h - 6$

$8k = 42 + 3h \quad \ldots (\mathrm{I})$

✓ $(h-2)^2 + (k-6)^2 = (h-3)^2 + (k-9)^2$

$(h-2)^2 - (h-3)^2 = (k-9)^2 - (k-6)^2$

$(2h-5)(1) = (2k-15)(-3)$

$h = 25 - 3k \quad \ldots (\mathrm{II})$

De I y II :

$8k = 42 + 3(25 - 3k)$

$17k = 117$

$k = \dfrac{117}{17} \rightarrow h = \dfrac{74}{17}$

$\therefore O\left(\dfrac{74}{17} ; \dfrac{117}{17}\right)$

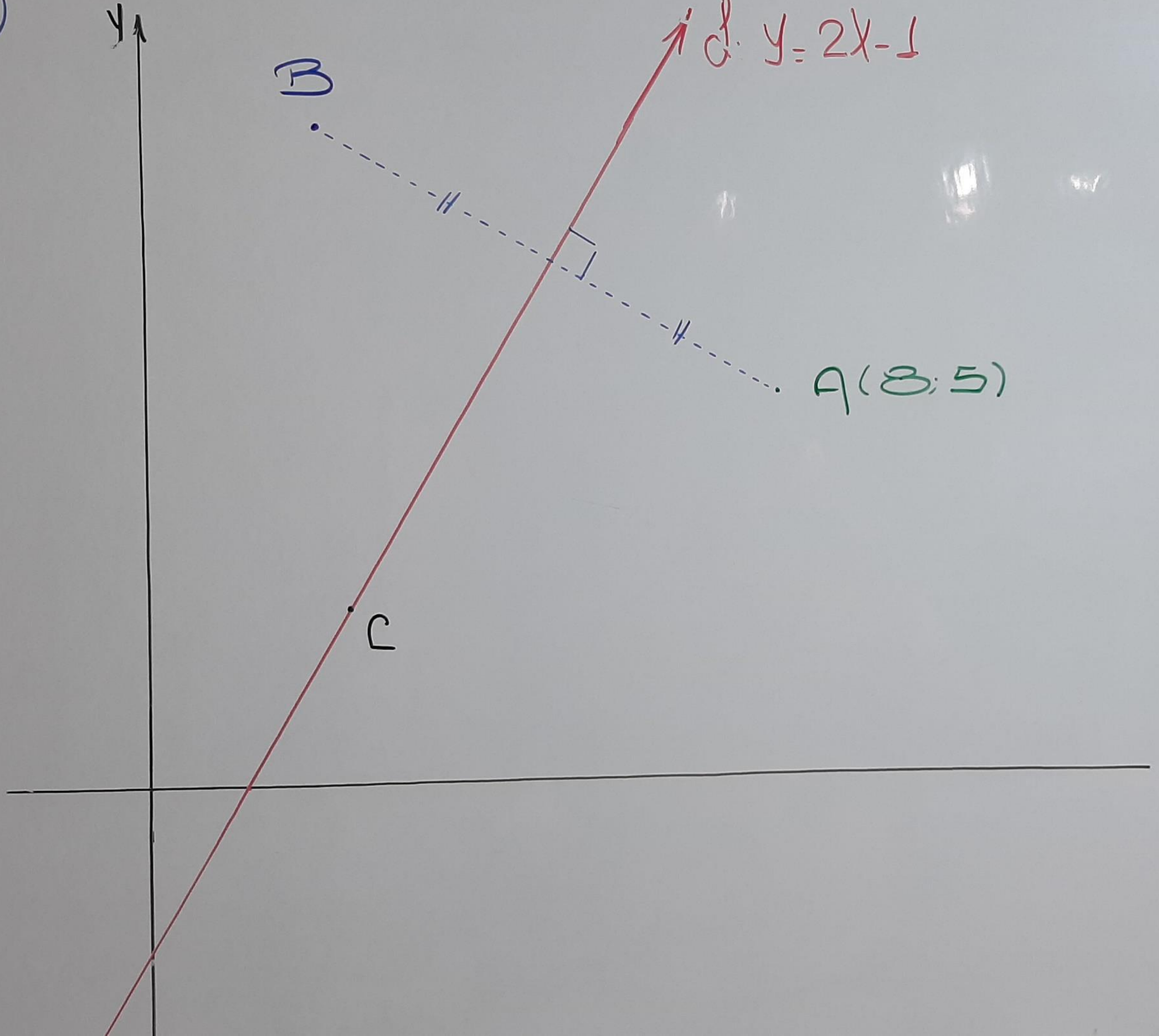
CLAVE A

Adicional 2:

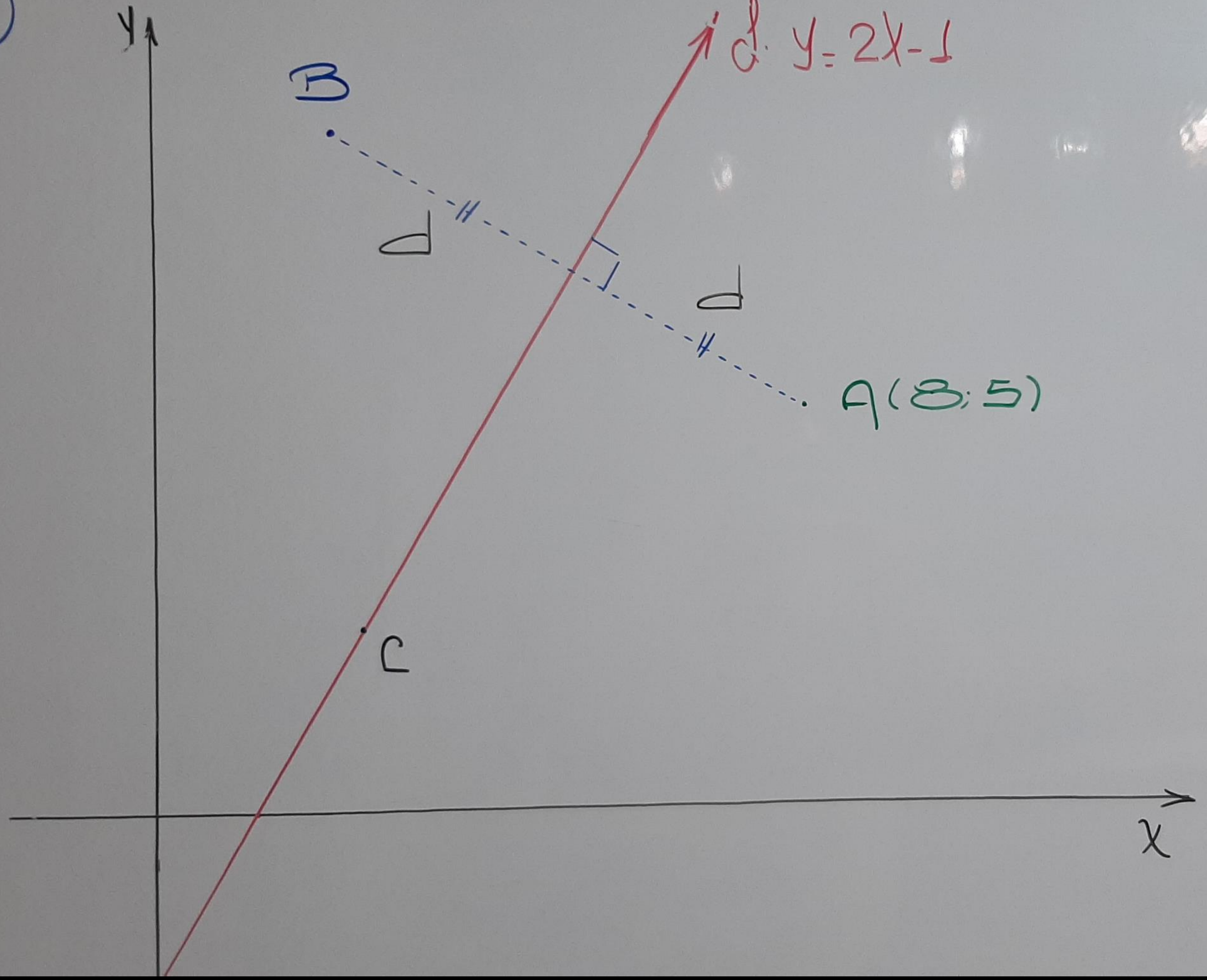
Los vértices de un triangulo ABC de área 10 u^2 son A(8;5), B es un punto simétrico de A con respecto a la recta $L: y = 2x - 1$ y “C” es un punto perteneciente a la recta “L”. Hallar las coordenadas de “C”.

A) $(6; 11)$ B) $(5; 9)$ C) $(8; 5)$
D) $(5; 8)$ E) $(2; 1)$

A2

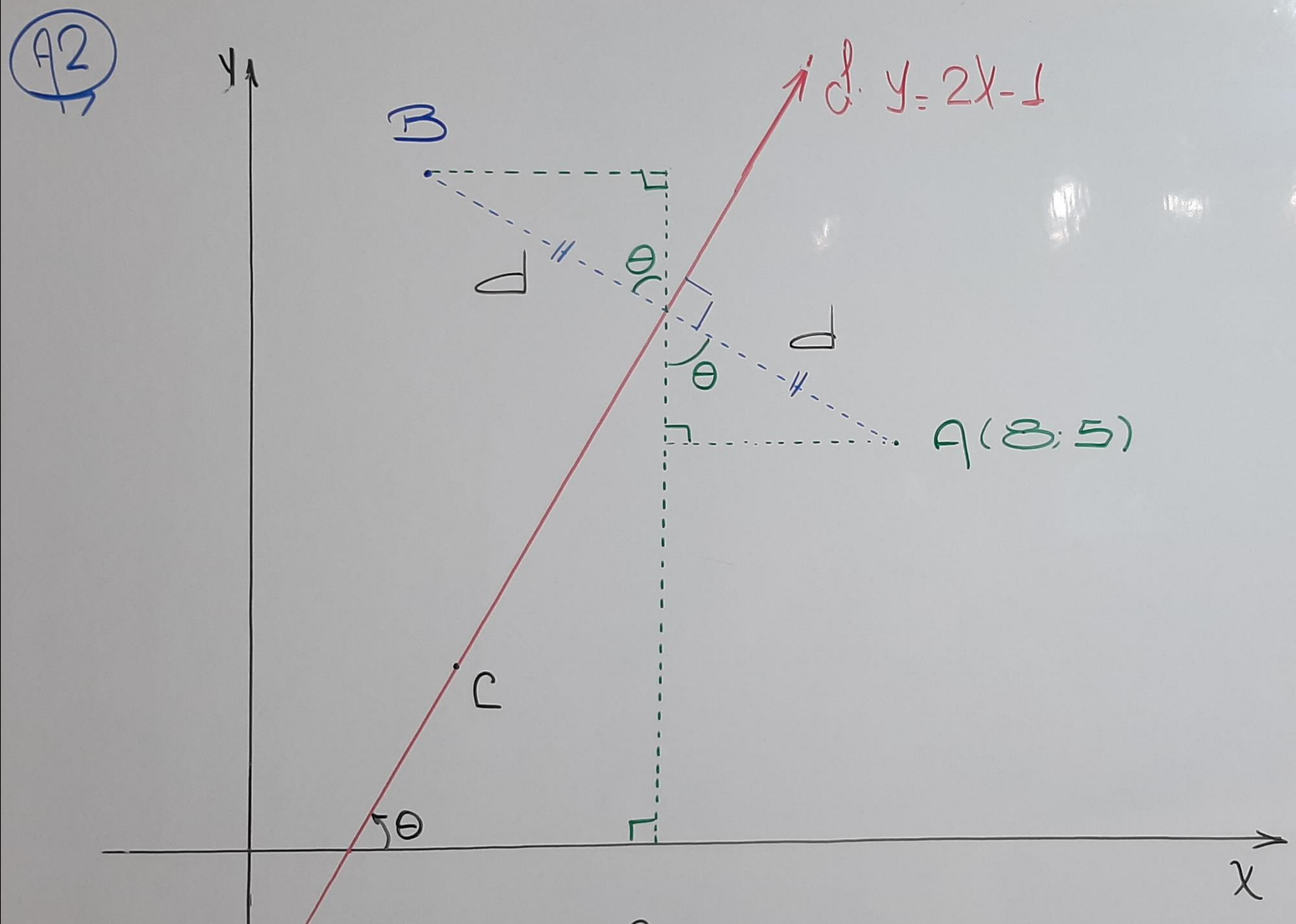


A2



$$d = \frac{|2(8) - 1(5) - 1|}{\sqrt{2^2 + 1^2}}$$

$$d = 2\sqrt{5}$$

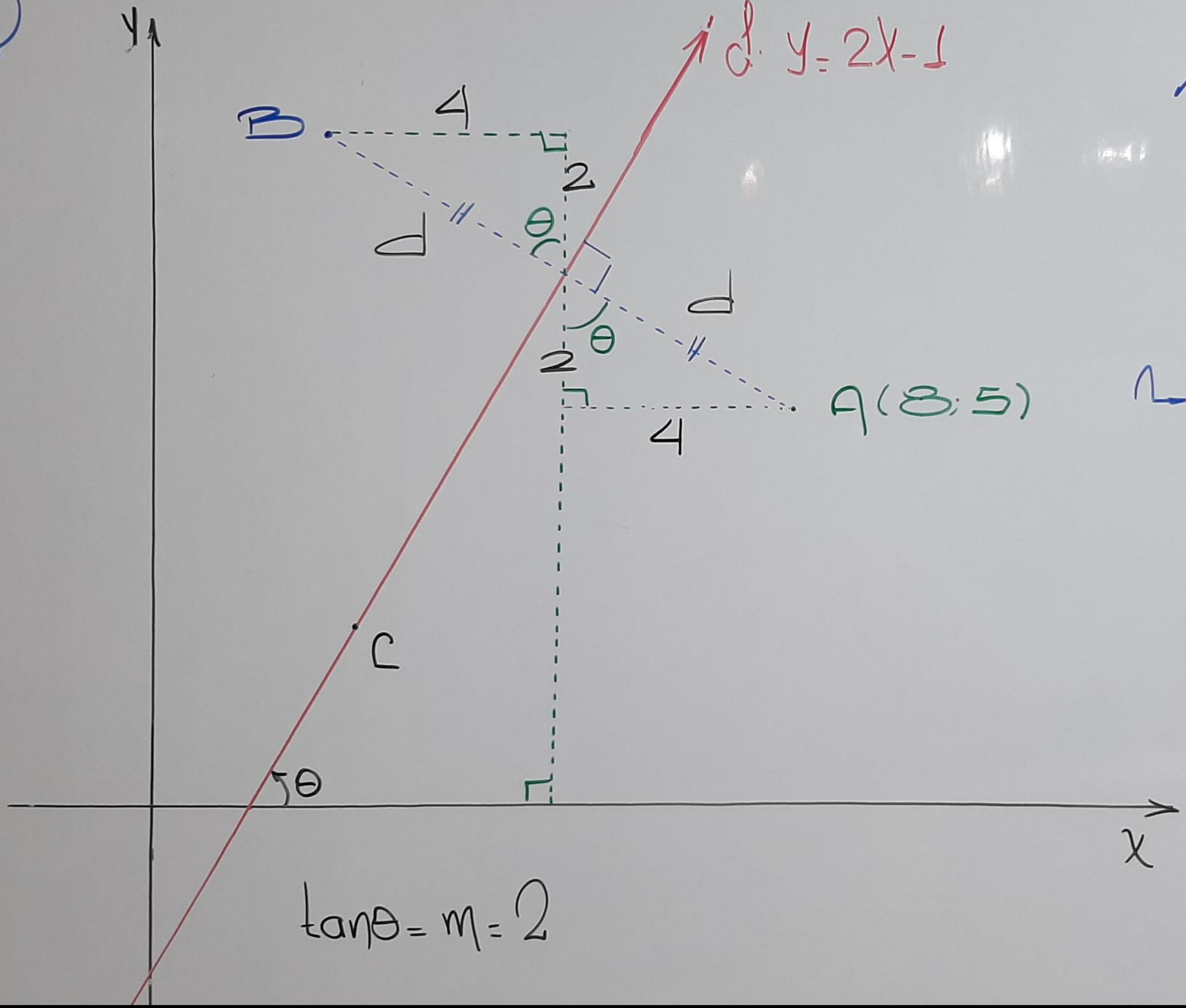


$\tan\theta = m = 2$

$$d = \frac{|2(8) - 1(5) - 1|}{\sqrt{2^2 + 1^2}}$$

$$d = 2\sqrt{5}$$

A2



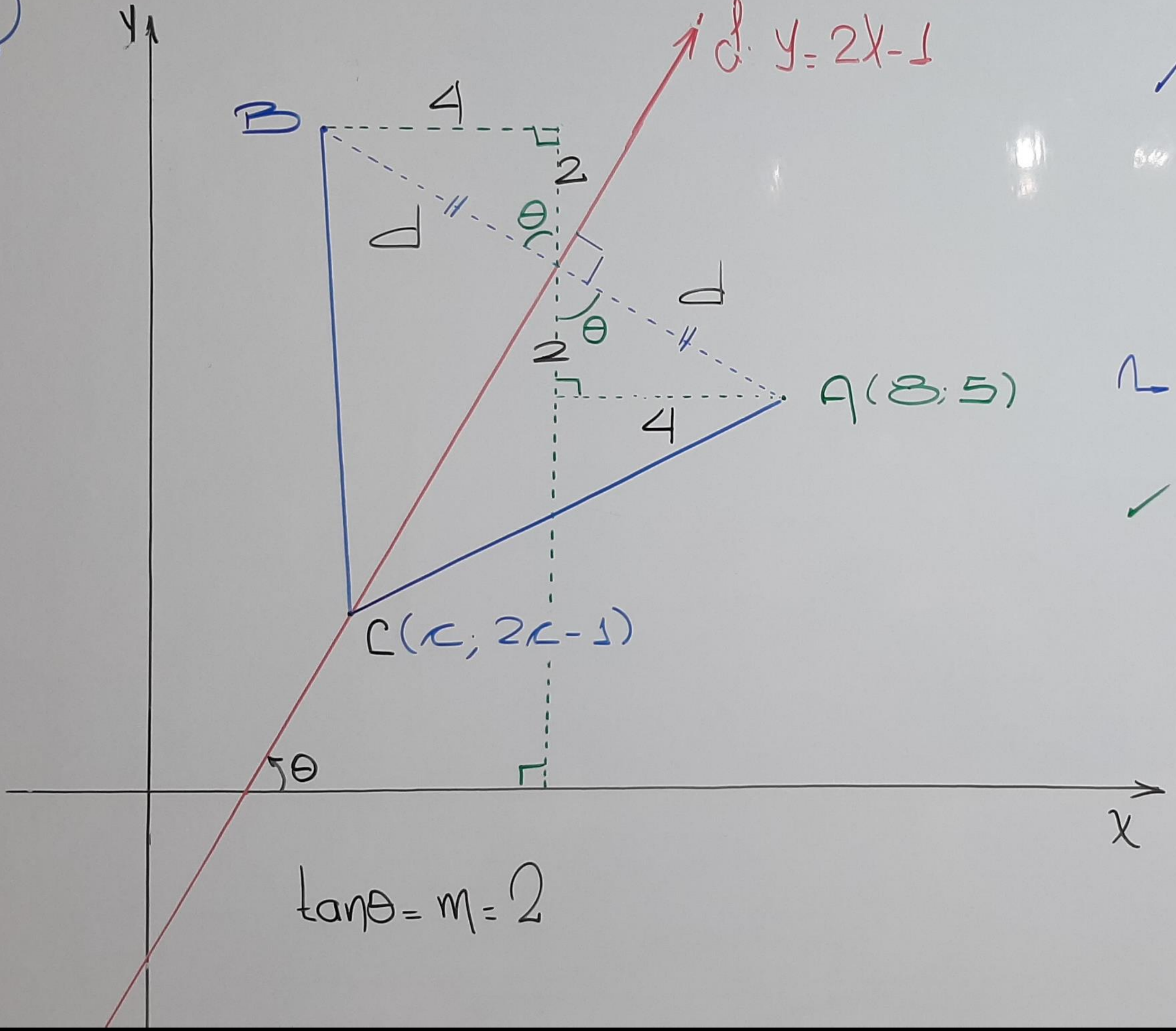
$\tan\theta = m = 2$

$$d = \frac{|2(8) - 1(5) - 1|}{\sqrt{2^2 + 1^2}}$$

$$d = 2\sqrt{5}$$

$B(0; 9)$

A2



$\tan\theta = m = 2$

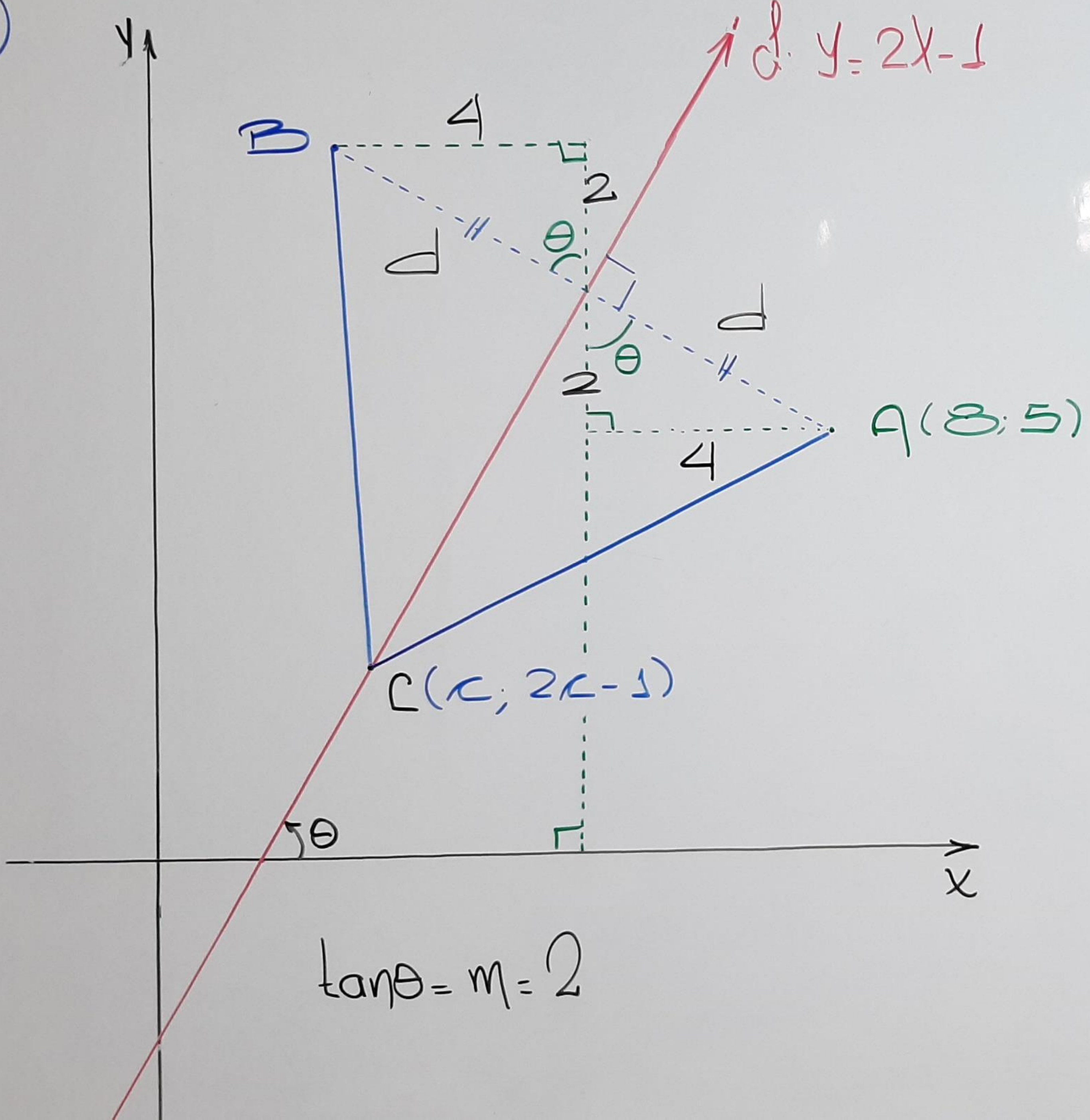
$d = \dfrac{|2(8) - 1(5) - 1|}{\sqrt{2^2 + 1^2}}$

$d = 2\sqrt{5}$

$B(0; 9)$

$S_{\Delta ABC} = 10u^2$

A2



$\tan\theta = m = 2$

$$d = \frac{|2(8) - 1(5) - 1|}{\sqrt{2^2 + 1^2}}$$

$$d = 2\sqrt{5}$$

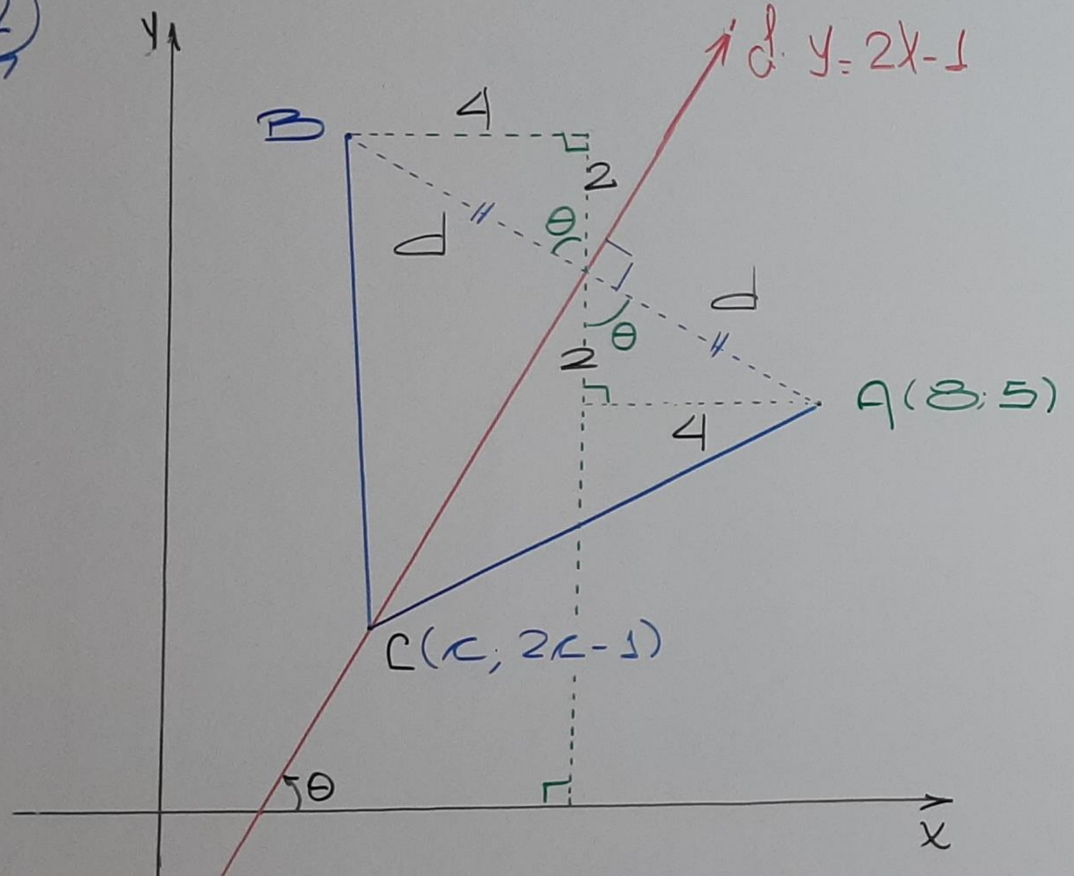
$B(0; 9)$

$S_{\Delta ABC} = 10u^2$

$$\begin{array}{r|cc|l} & 0 & 9 & \\ 9x & x & 2x-1 & 0 \\ 16x-8 & 8 & 5 & 5x \\ 0 & 0 & 9 & 72 \\ \hline 25x-8 & & & 5x+72 \end{array}$$

$$10 = \frac{|80 - 20x|}{2}$$

12



$\tan\theta = m = 2$

$d = \dfrac{|2(8) - 1(5) - 1|}{\sqrt{2^2 + 1^2}}$

$d = 2\sqrt{5}$

$B(0;9)$

$S_{\Delta ABC} = 10u^2$

$$\begin{array}{r|cc|l} & 0 & 9 & \\ 9c & c & 2c-1 & 0 \\ 16c-8 & 8 & 5 & 5c \\ 0 & 0 & 9 & 72 \\ \hline 25c-8 & & & 5c+72 \end{array}$$

$10 = \dfrac{|80 - 20c|}{2}$

$|4 - c| = 1$

$4 - c = 1 \lor 4 - c = -1$

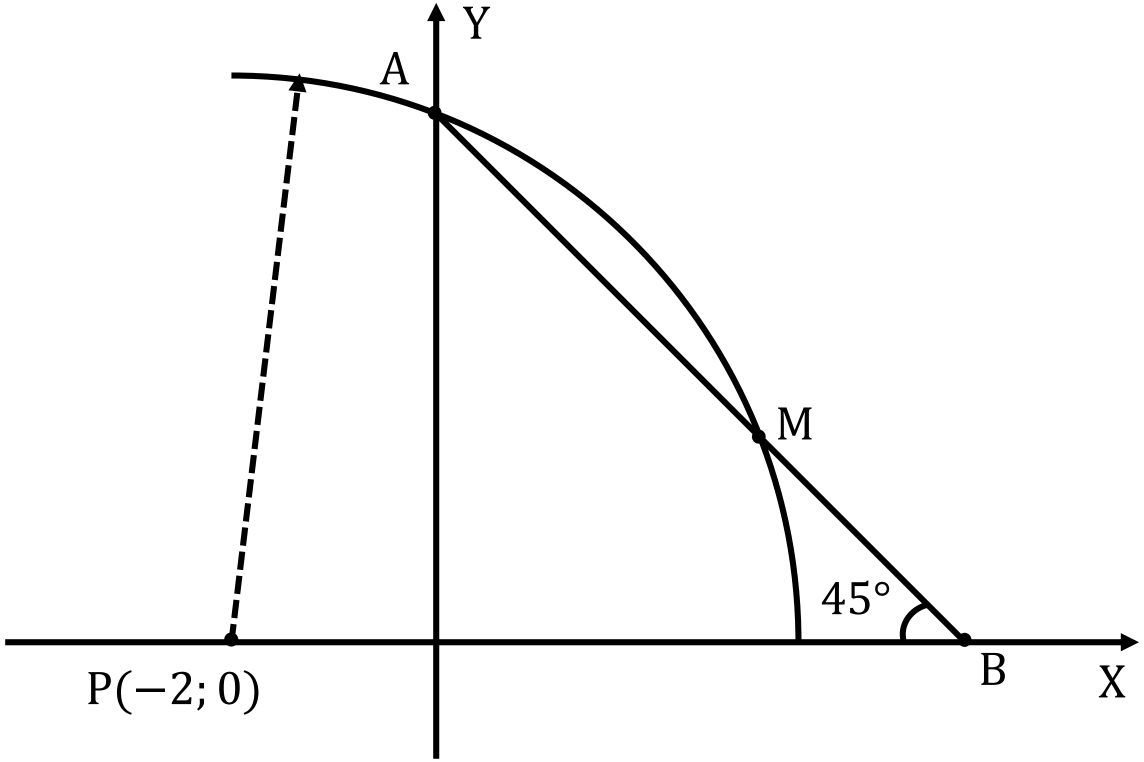
$c = 3 \lor c = 5$

$C(3;5) \lor C(5;9)$

CLAVE B

Adicional 3:

Del grafico AM=MB; halle la ecuación de $\overline{PM}$.

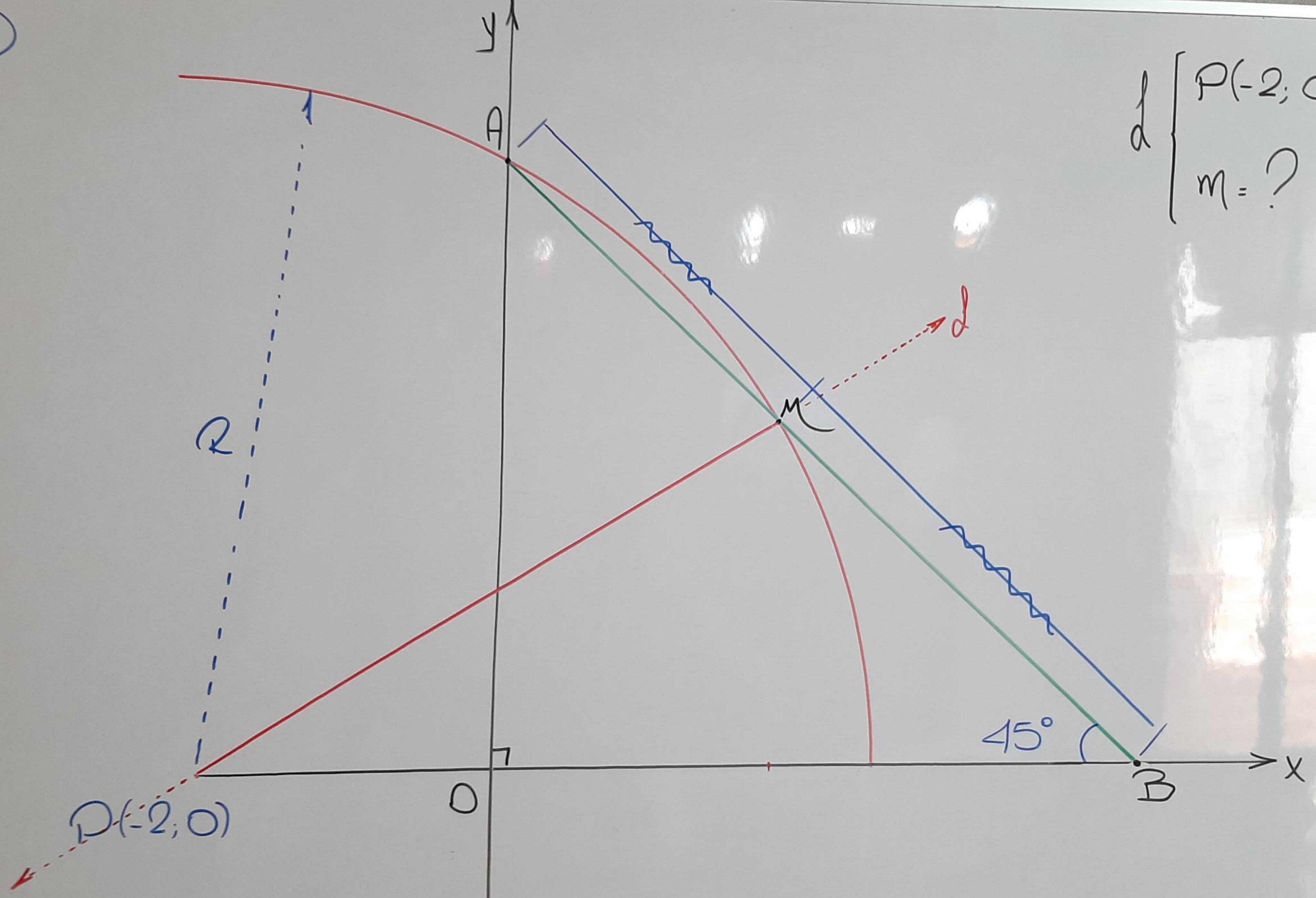


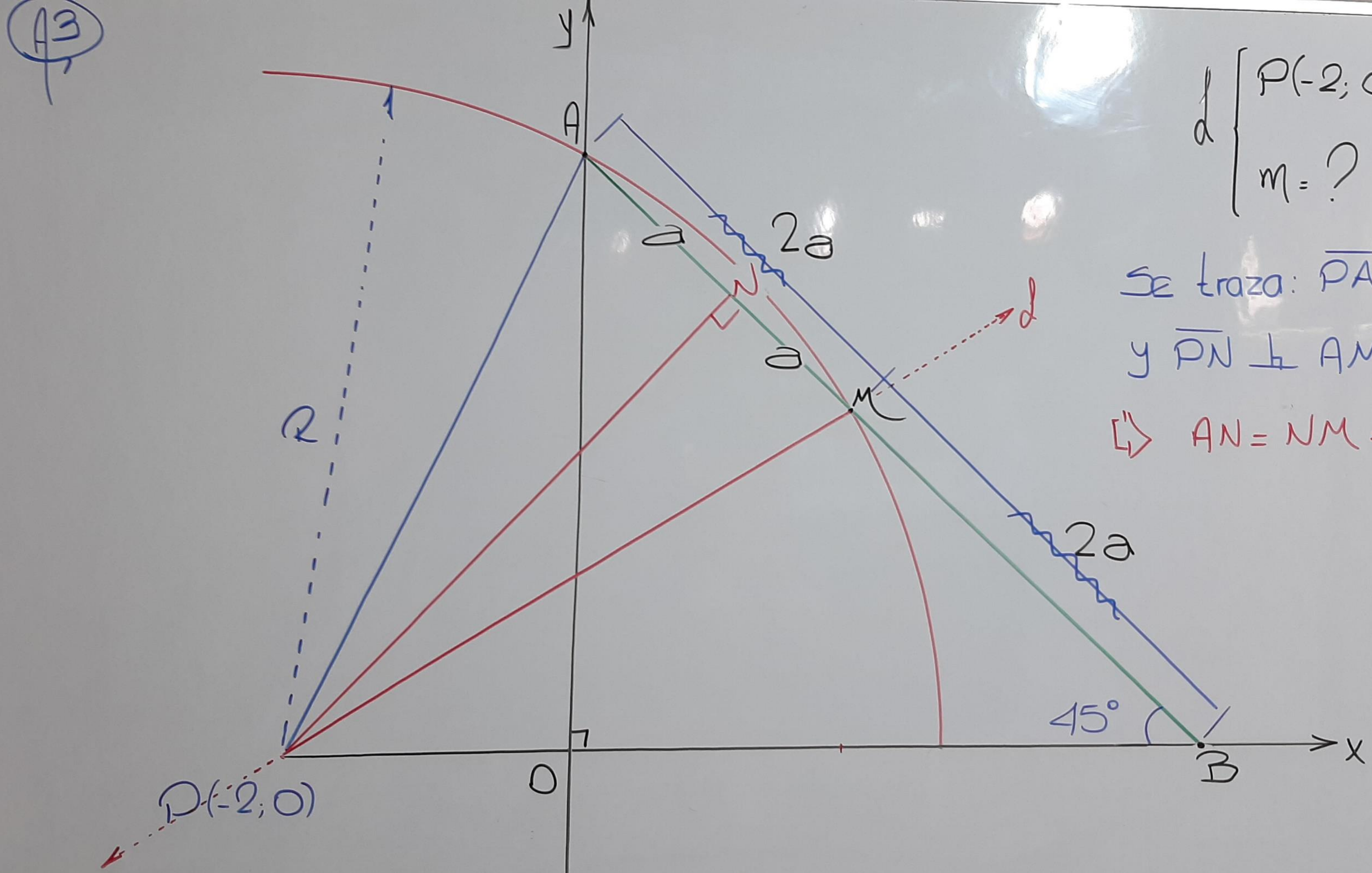
A) $x - 2y + 2 = 0$ B) $x - y + 2 = 0$ C) $x + 2y + 2 = 0$

D) $x - 2y - 1 = 0$ E) $x - 2y - 3 = 0$

A3

$$d\begin{cases} P(-2;0) \\ m = ? \end{cases}$$





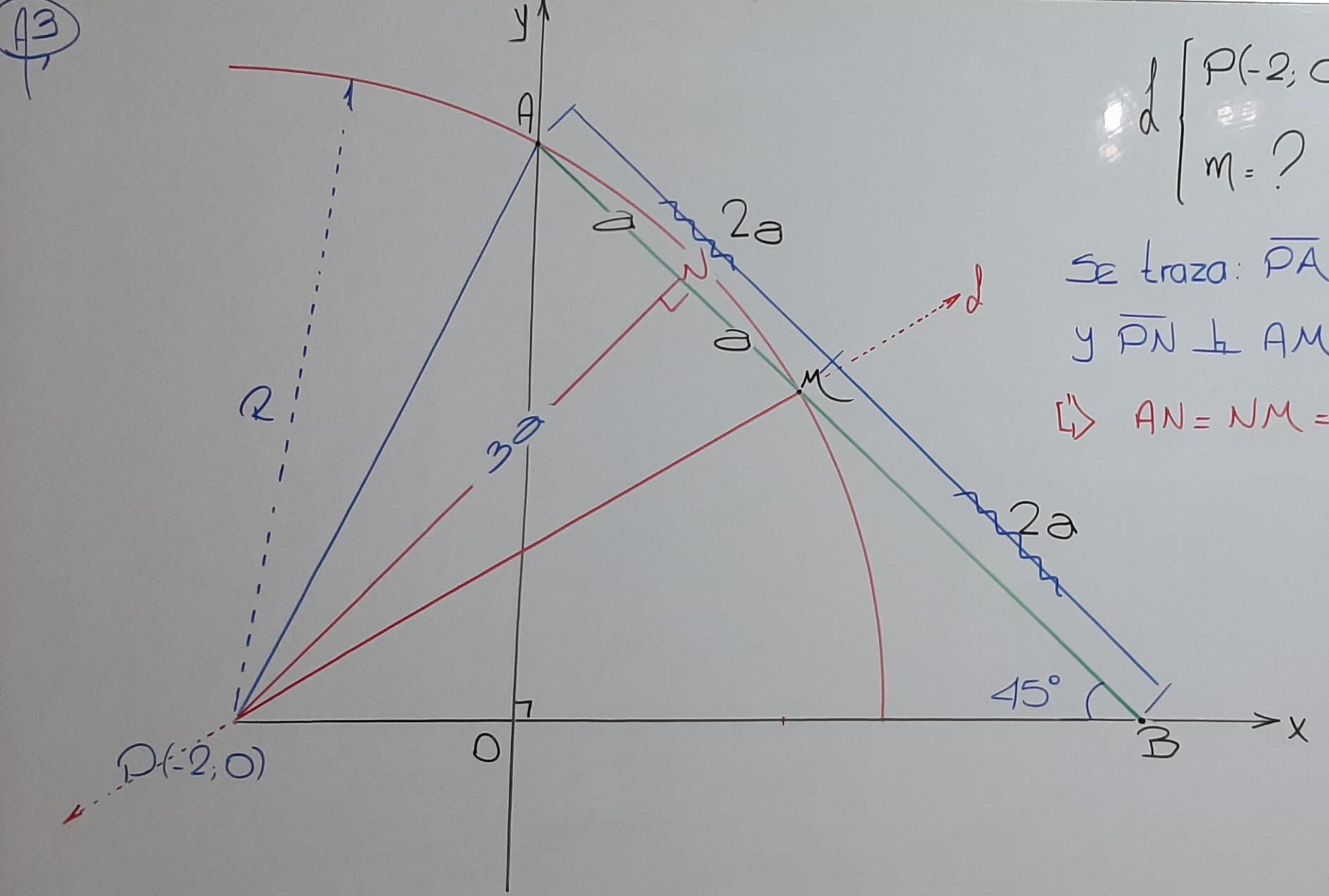
$d \begin{cases} P(-2;0) \\ m = ? \end{cases}$

Se traza: $\overline{PA}$

y $\overline{PN} \perp AM$

$\Rightarrow AN = NM = a$

13



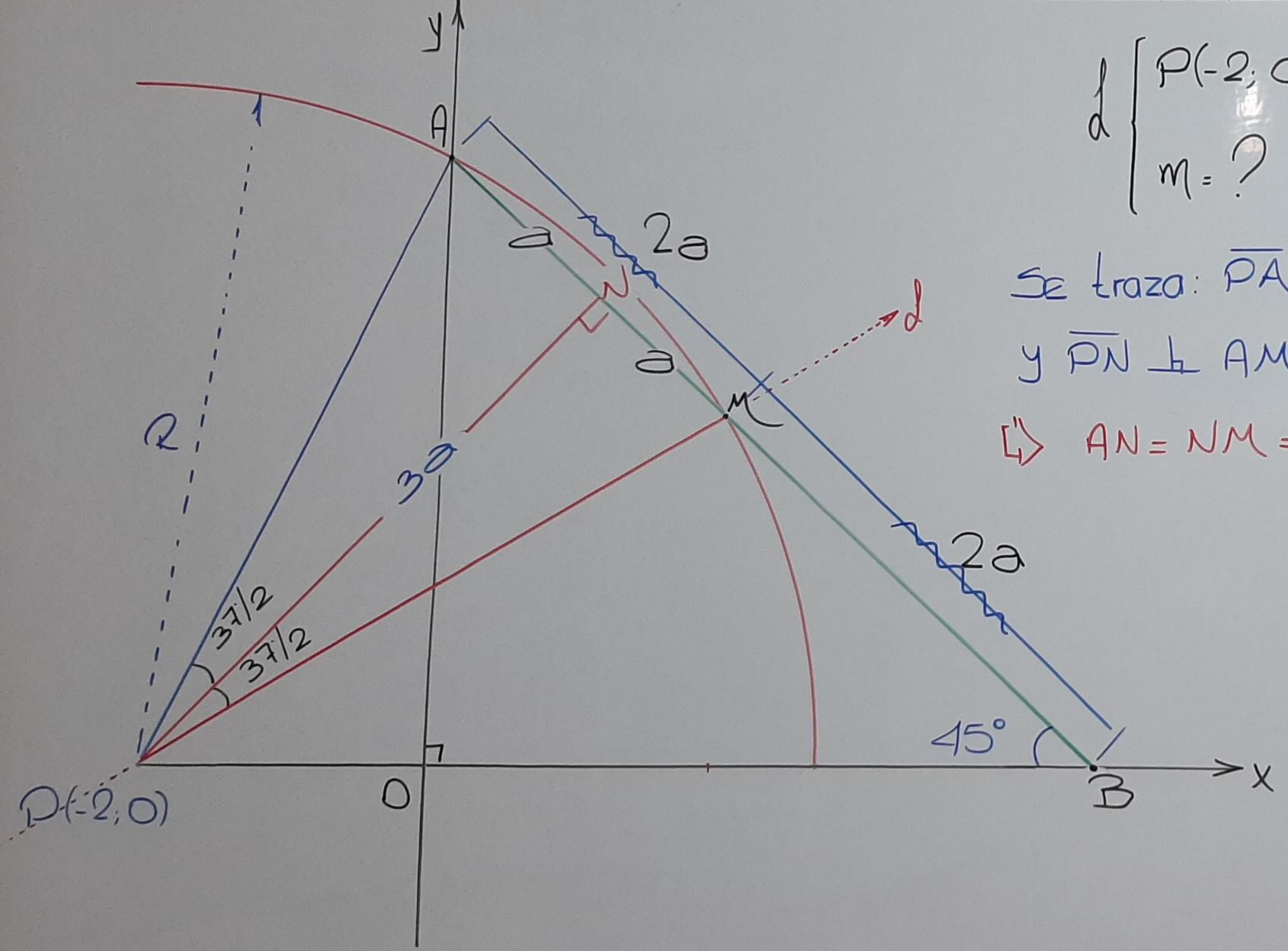
$d \begin{cases} P(-2;0) \\ m = ? \end{cases}$

Se traza: $\overline{PA}$

y $\overline{PN} \perp AM$

↳ $AN = NM = a$

◺ PNB: $NB = 3a \rightarrow PN = 3a$



$d \begin{cases} P(-2;0) \\ m = ? \end{cases}$

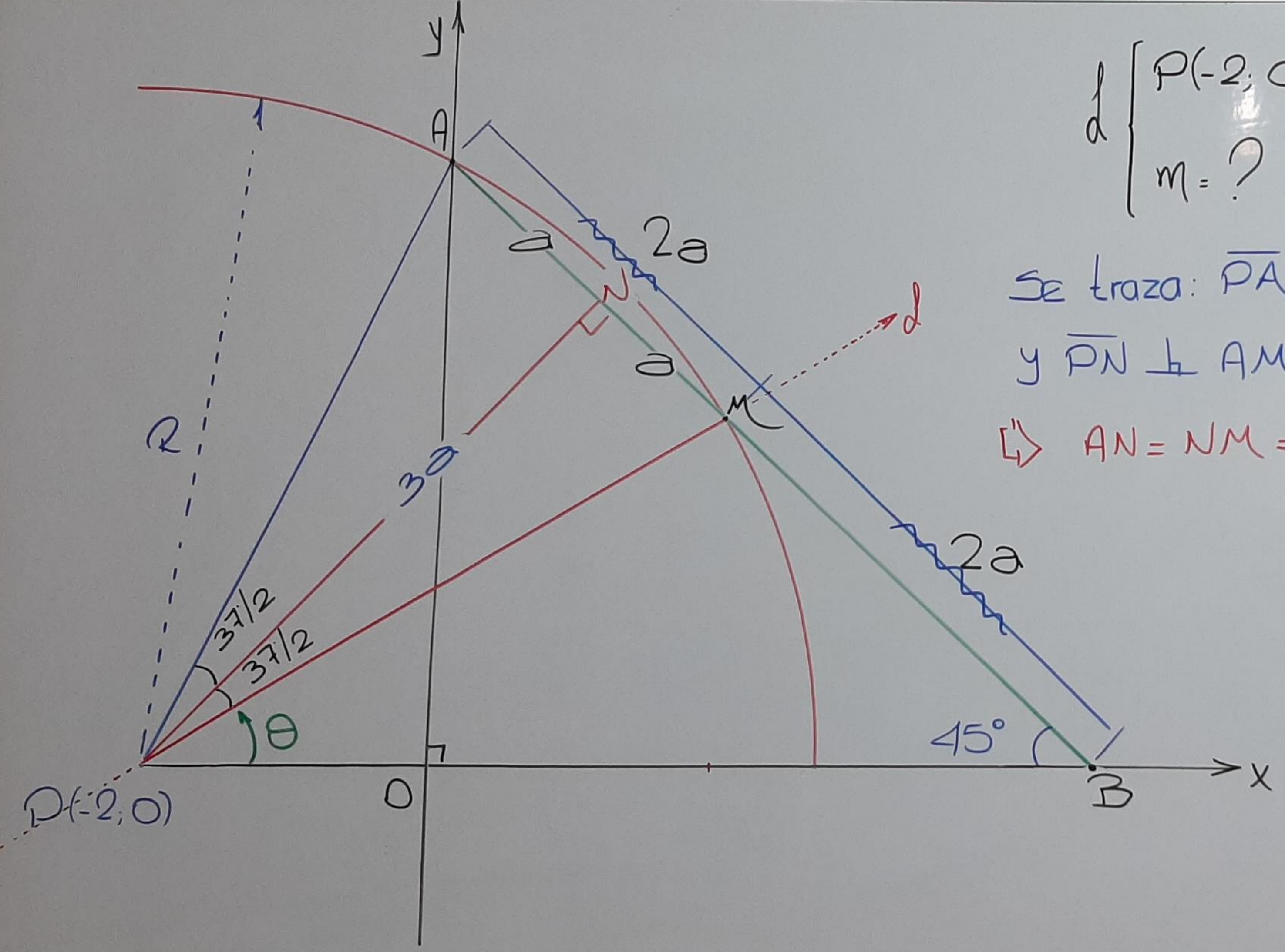
Se traza: $\overline{PA}$

y $\overline{PN} \perp AM$

$\Rightarrow AN = NM = a$

$\triangle PNB$: $NB = 3a \rightarrow PN = 3a$

En $\triangle ANP$: $\measuredangle APN = \dfrac{37}{2}^\circ = \measuredangle NPM$



$d \begin{cases} P(-2;0) \\ m = ? \end{cases}$

Se traza: $\overline{PA}$

y $\overline{PN} \perp AM$

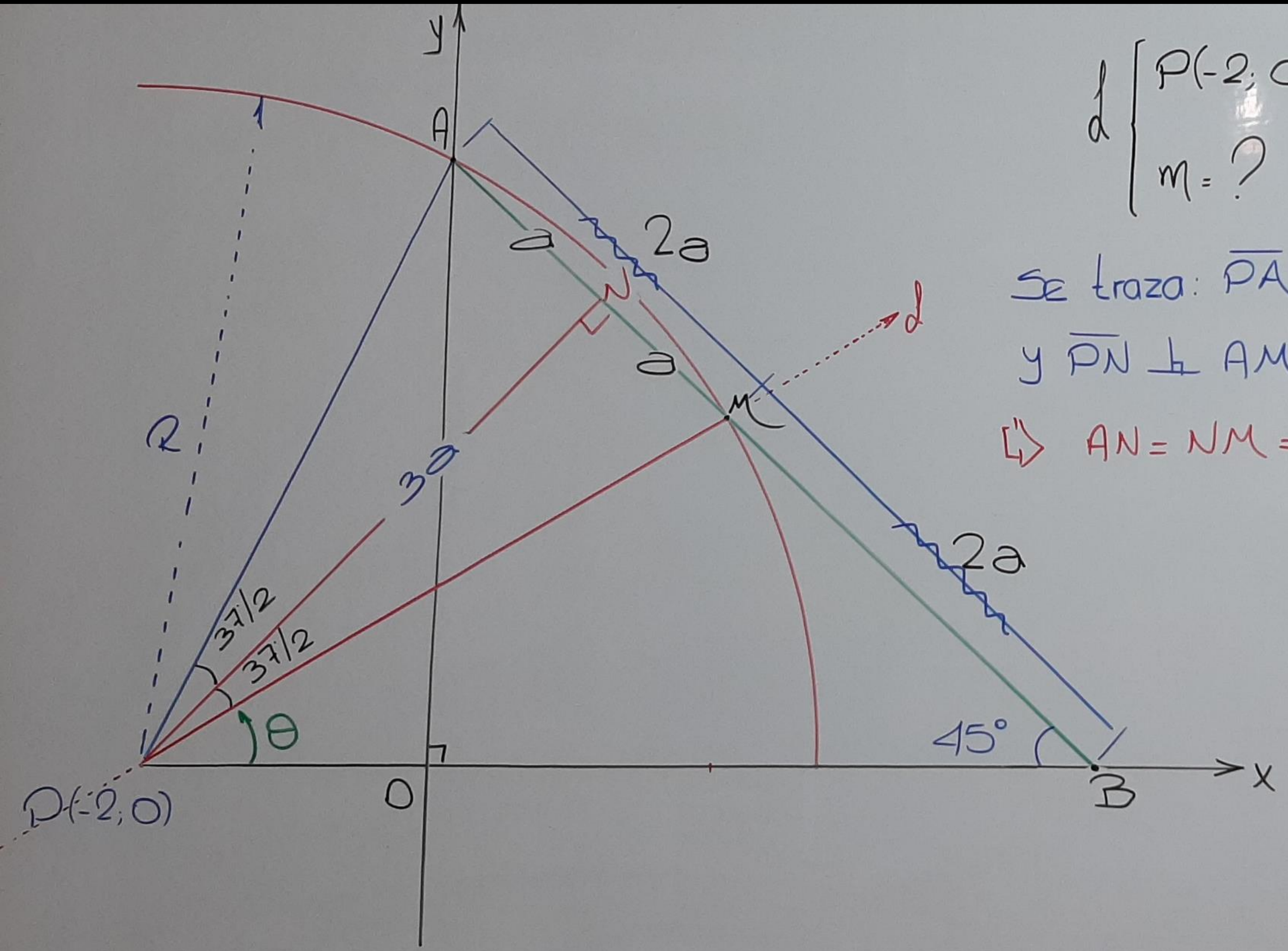
$\Rightarrow AN = NM = a$

$\triangle PNB$: $NB = 3a \rightarrow PN = 3a$

En $\triangle ANP$: $\measuredangle APN = \frac{37^\circ}{2} = \measuredangle NPM$

$\hookrightarrow \theta + \frac{37^\circ}{2} = 45^\circ$

$\theta = \frac{53^\circ}{2}$ $\hookrightarrow m = \tan\frac{53^\circ}{2} = \frac{1}{2}$



$d \begin{cases} P(-2;0) \\ m = ? \end{cases}$

Se traza: $\overline{PA}$

y $\overline{PN} \perp AM$

$\Rightarrow AN = NM = a$

$\triangle PNB$: $NB = 3a \rightarrow PN = 3a$

En $\triangle ANP$: $\measuredangle APN = \frac{37^\circ}{2} = \measuredangle NPM$

$\hookrightarrow \theta + \frac{37^\circ}{2} = 45^\circ$

$\theta = \frac{53^\circ}{2}$ $\hookrightarrow m = \tan\frac{53^\circ}{2} = \frac{1}{2}$

$y - y_0 = m(x - x_0)$

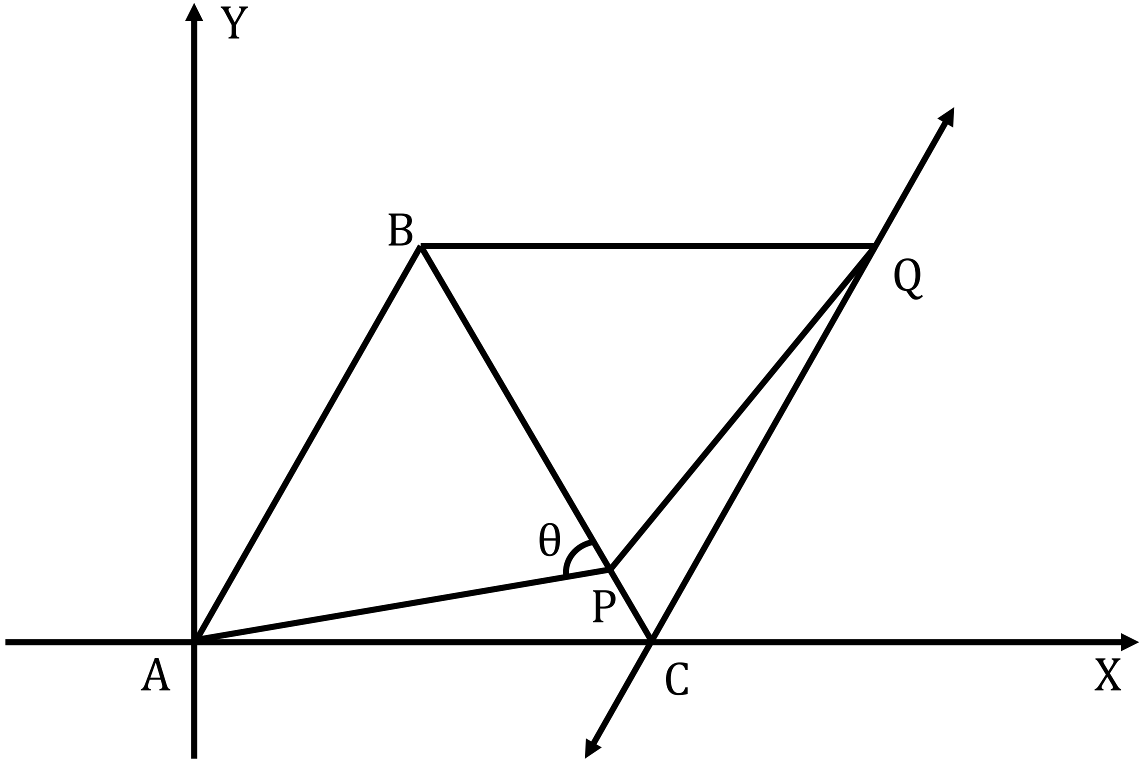
$y - 0 = \frac{1}{2}(x - (-2))$

$\therefore d: x - 2y + 2 = 0$

CLAVE A

Adicional 4:

Del grafico, ABC y BQP son triángulos equiláteros. Si BC=a, halle la ecuación de L.



A) $\operatorname{Tan}\theta x - y - a\operatorname{Tan}\theta = 0$

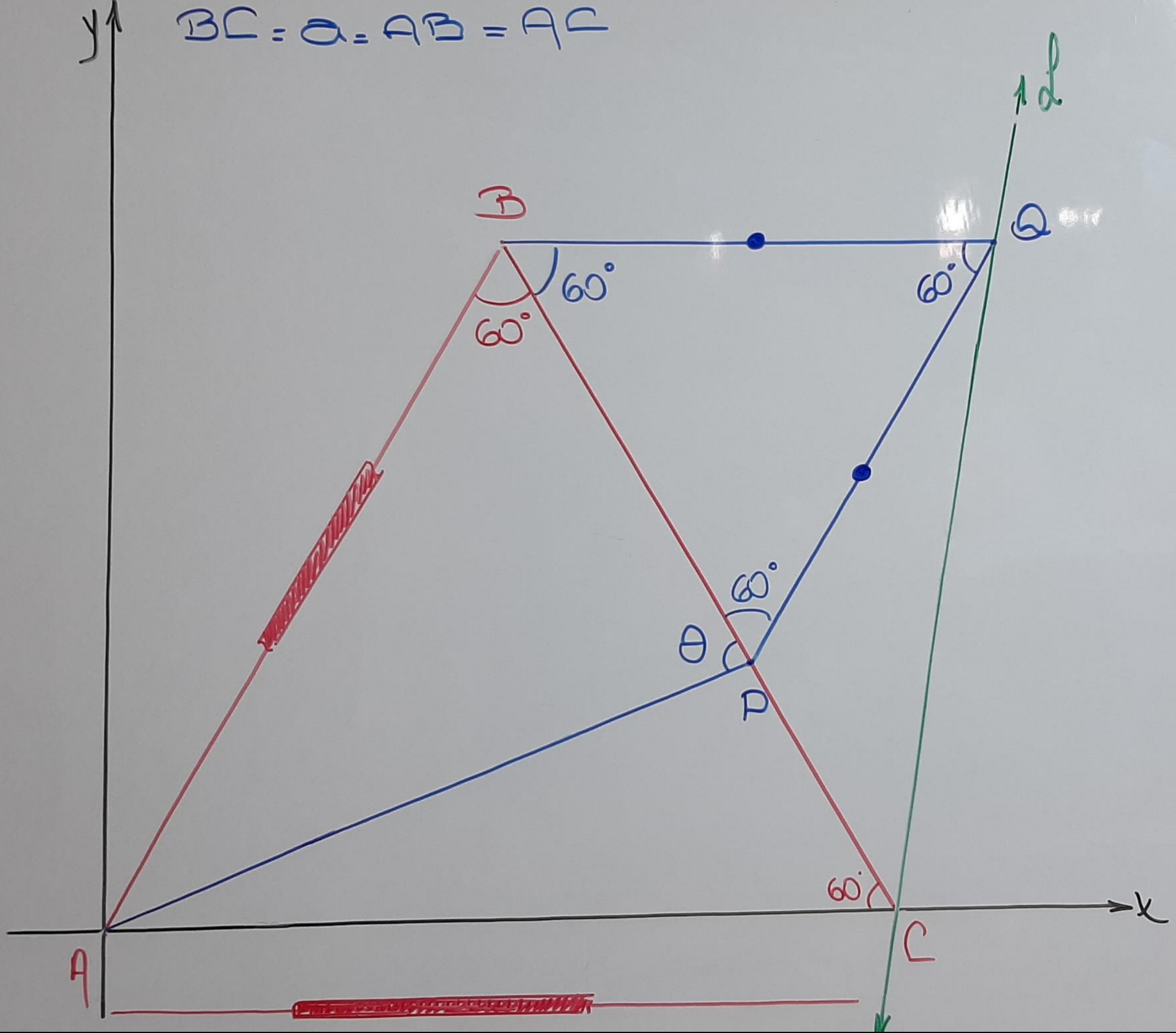
B) $\operatorname{Sen}\theta - y - a = 0$

C) $\operatorname{Tan}\theta x - y - a\operatorname{Tan}\theta = 0$

D) $x - \operatorname{Tan}\theta y - a = 0$

E) $x - \operatorname{Sen}\theta y - a = 0$

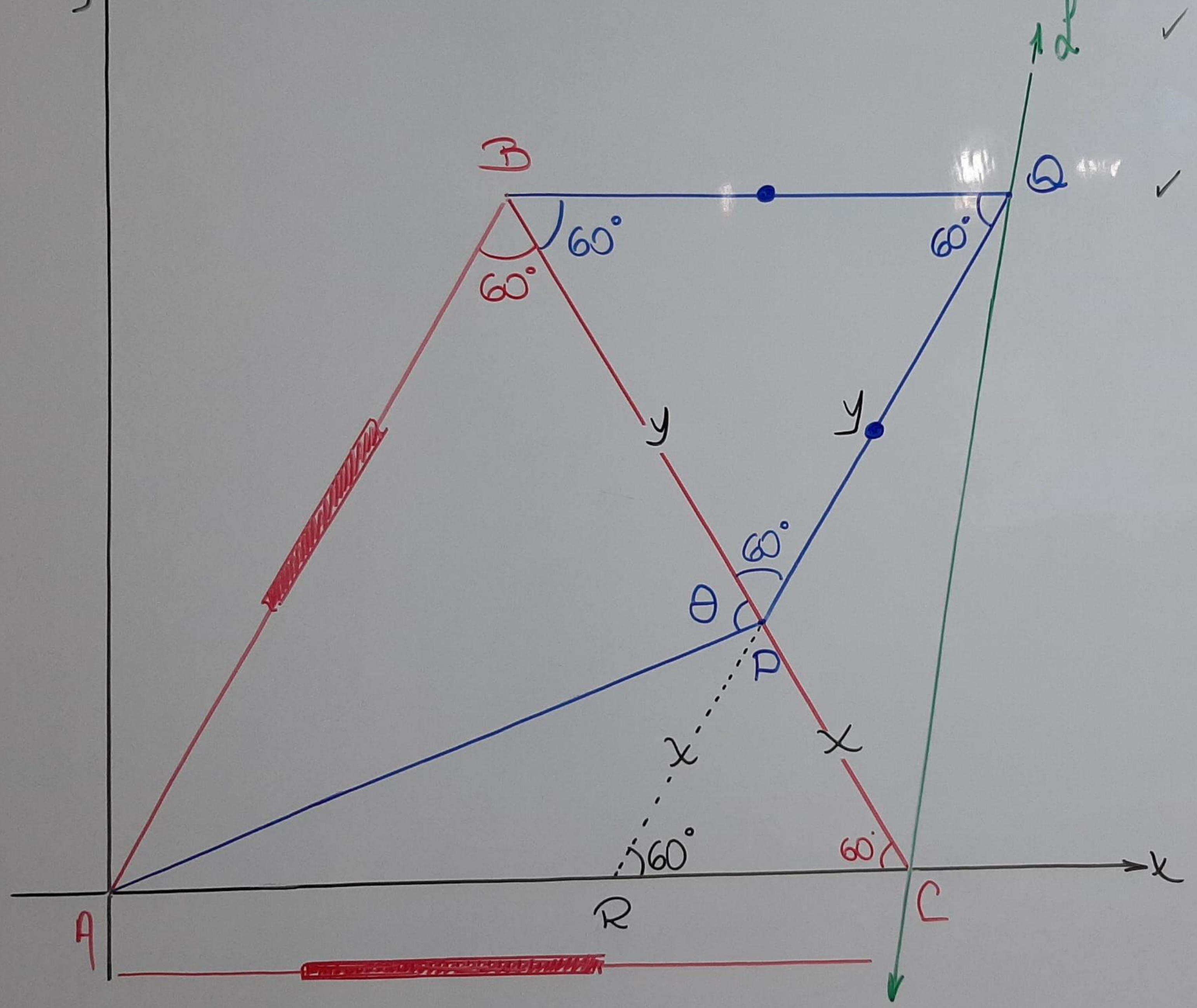
$BC = a = AB = AC$



Del gráfico:

$\overline{BQ} \parallel \overline{AC}$

$BC = a = AB = AC$



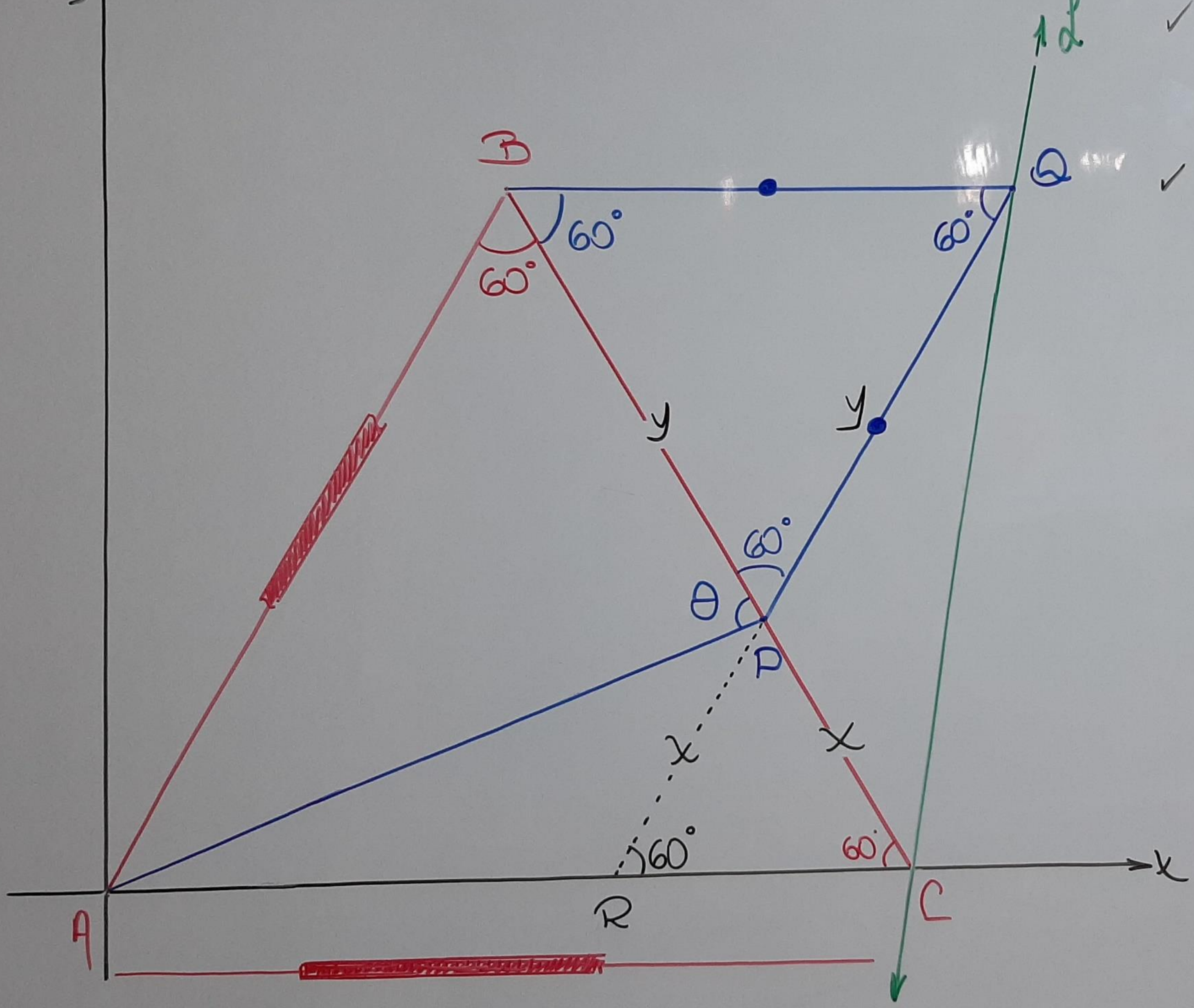
✓ Del gráfico:

$\overline{BQ} \parallel \overline{AC}$

✓ Se prolonga: $\overline{QP}$

↳ ΔRPC: Equilátero

$BC = a = AB = AC$

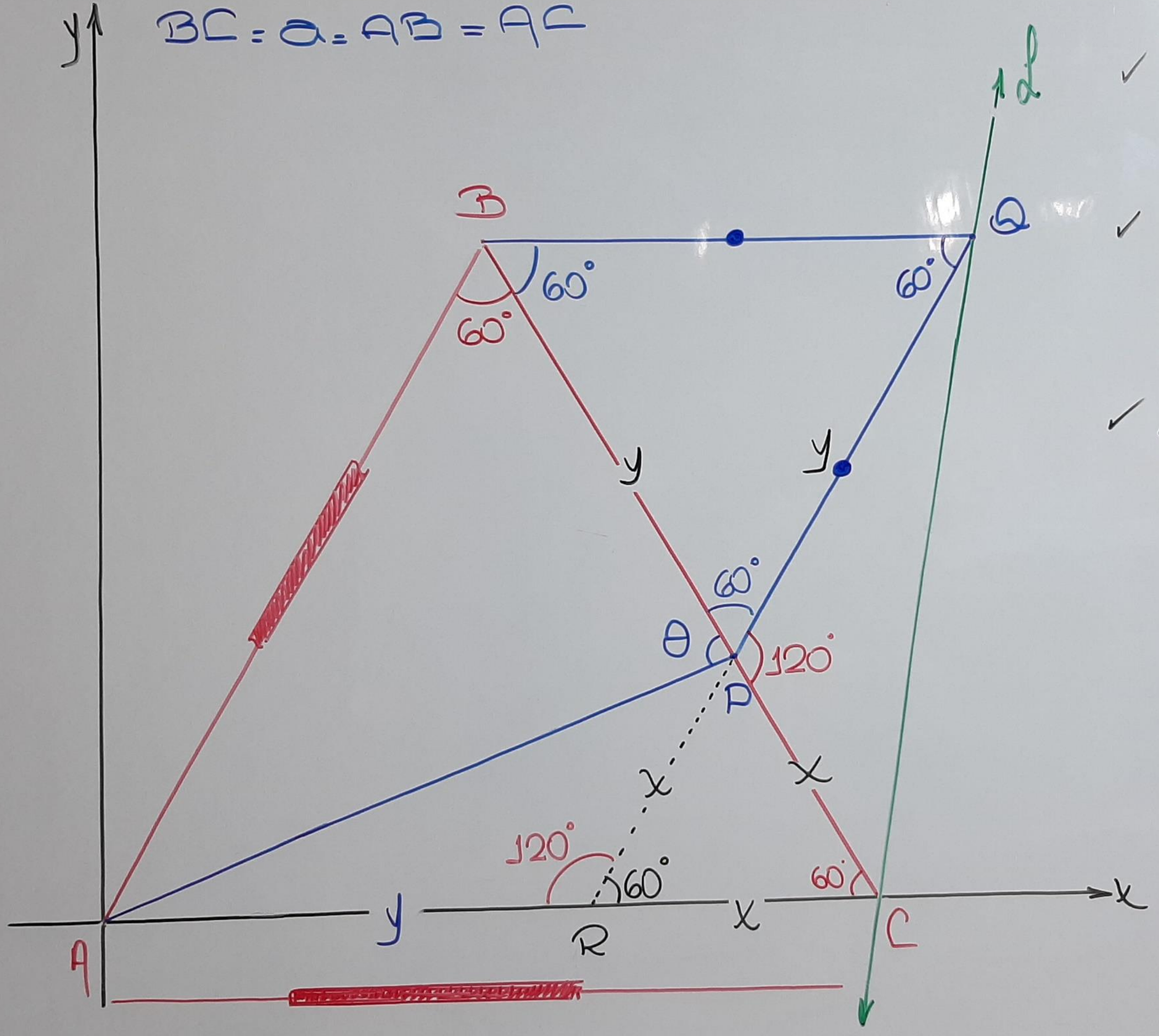


✓ Del gráfico:

$\overline{BQ} \parallel \overline{AC}$

✓ Se prolonga: $\overline{QP}$

↳ ΔRPC: Equilátero



✓ Del gráfico:

$\overline{BQ} \parallel \overline{AC}$

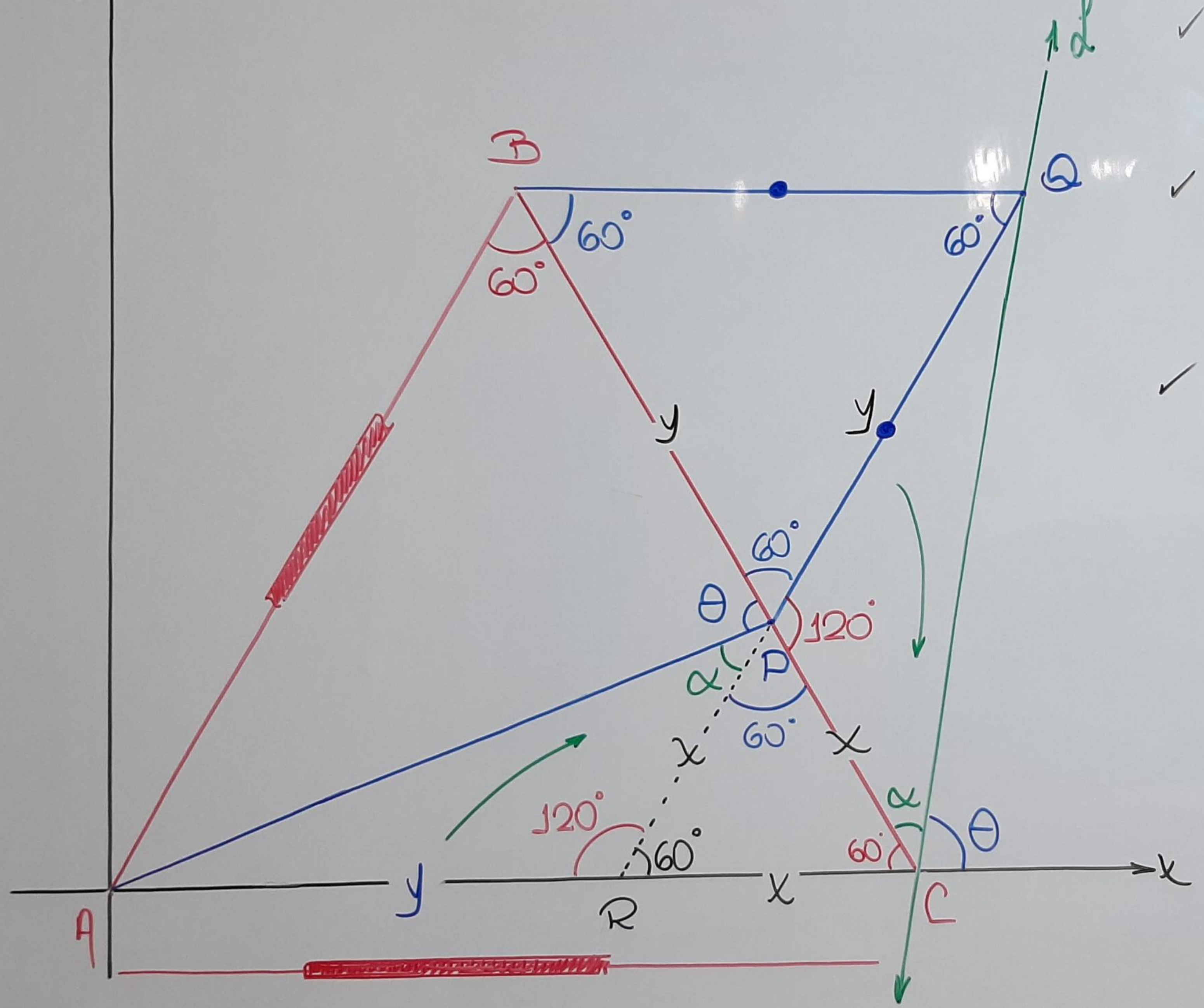
✓ Se prolonga: $\overline{QP}$

∟ $\triangle RPC$: Equilátero

✓ $\triangle ARC \cong \triangle QPC$

(L. A. L)

$BC = a = AB = AC$



✓ Del gráfico:

$\overline{BQ} \parallel \overline{AC}$

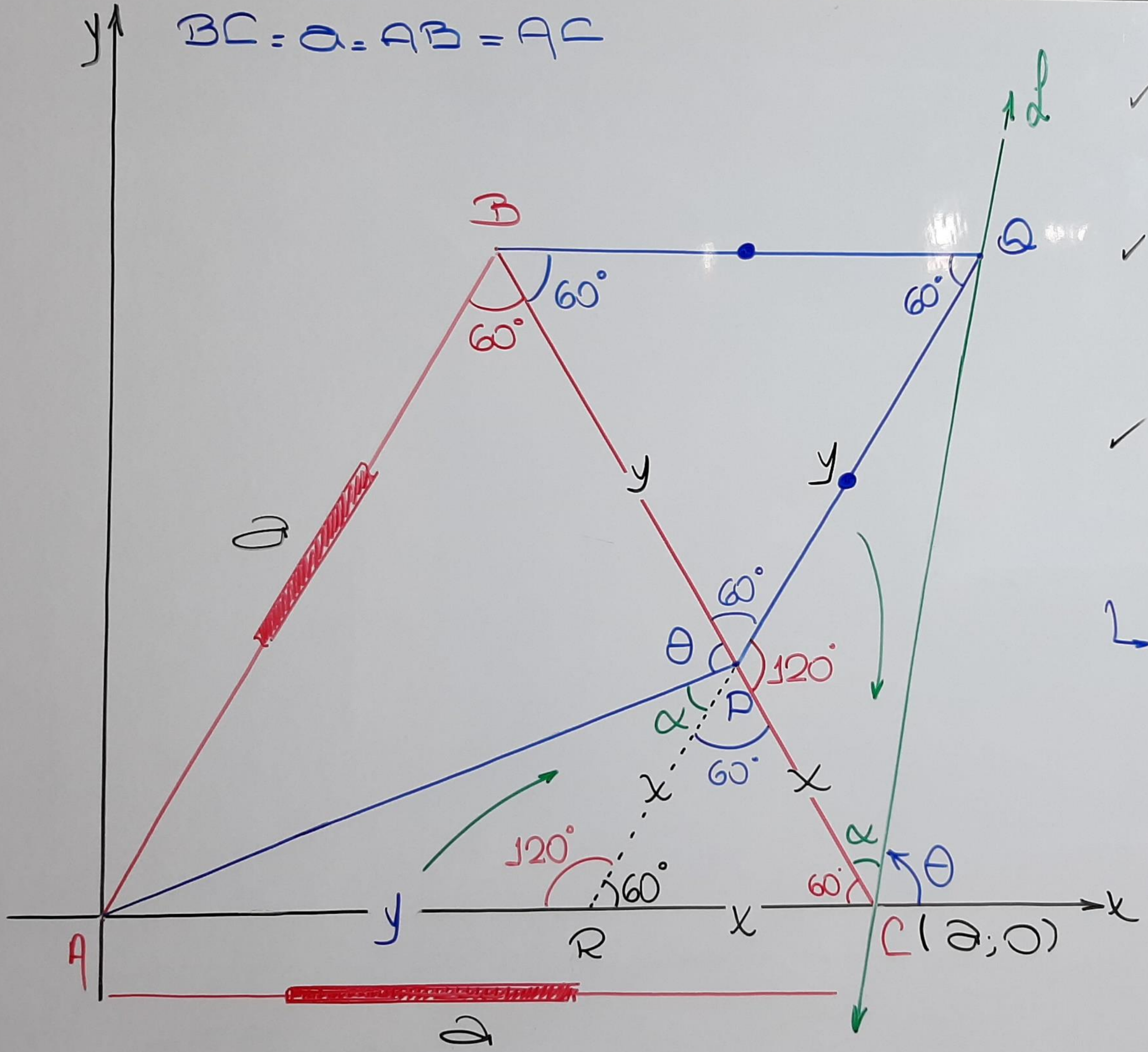
✓ Se prolonga: $\overline{QP}$

$\therefore \triangle RPC$: Equilátero

✓ $\triangle ARC \cong \triangle QPC$

(L. A. L)

$BC = a = AB = AC$



✓ Del gráfico:

$\overline{BQ} \parallel \overline{AC}$

✓ Se prolonga: $\overline{QP}$

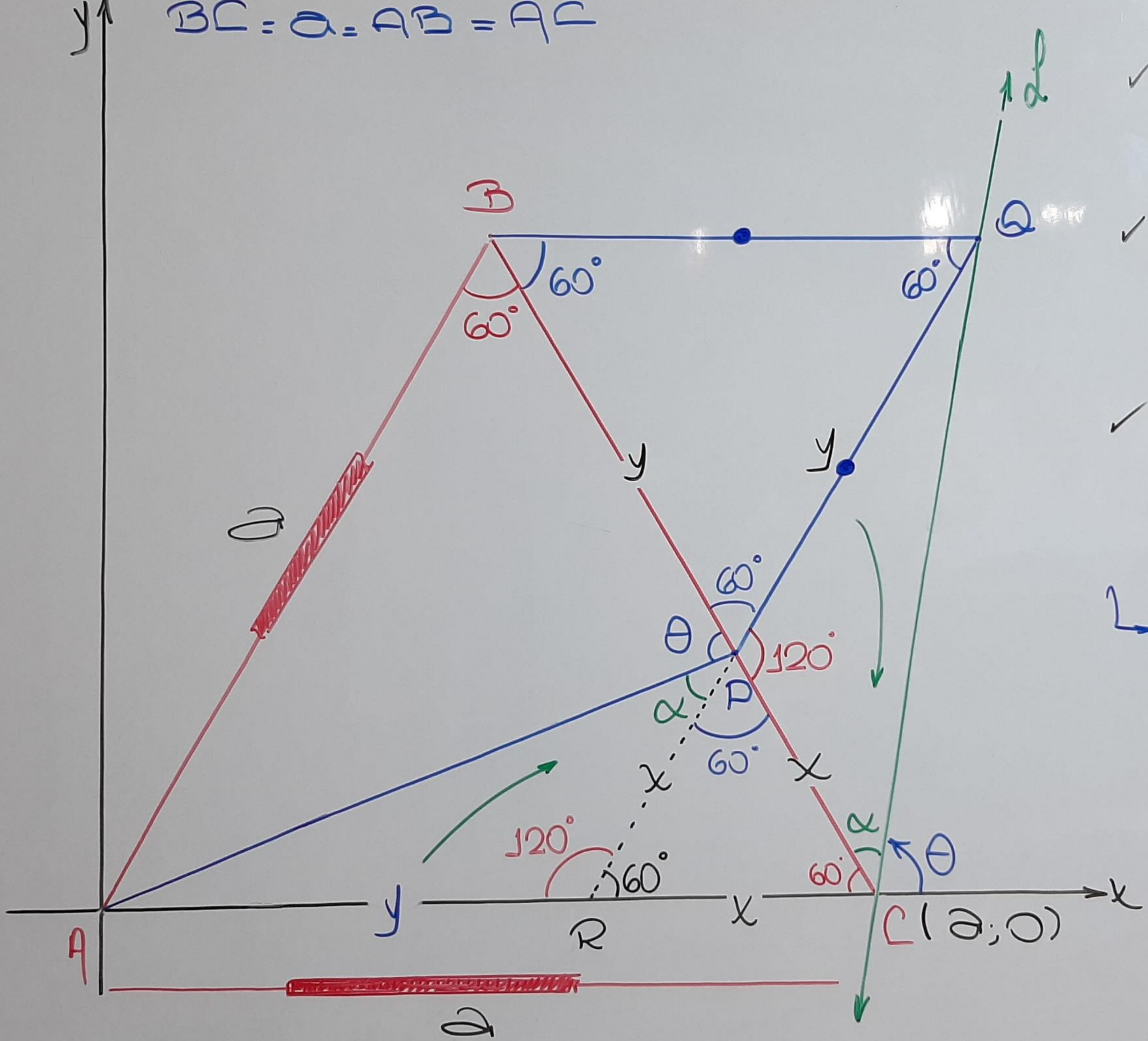
↳ $\triangle RPC$: Equilátero

✓ $\triangle ARC \cong \triangle QPC$

(L. A. L)

↳ $\mathcal{L}: \begin{cases} C(a;0) \\ m = \tan\theta \end{cases}$

$BC = a = AB = AC$



✓ Del gráfico:

$\overline{BQ} \parallel \overline{AC}$

✓ Se prolonga: $\overline{QP}$

↳ ΔRPC: Equilátero

✓ $\Delta ARC \cong \Delta QPC$

(L.A.L)

↳ $\mathcal{L}: \begin{cases} C(a;0) \\ m = \tan\theta \end{cases}$

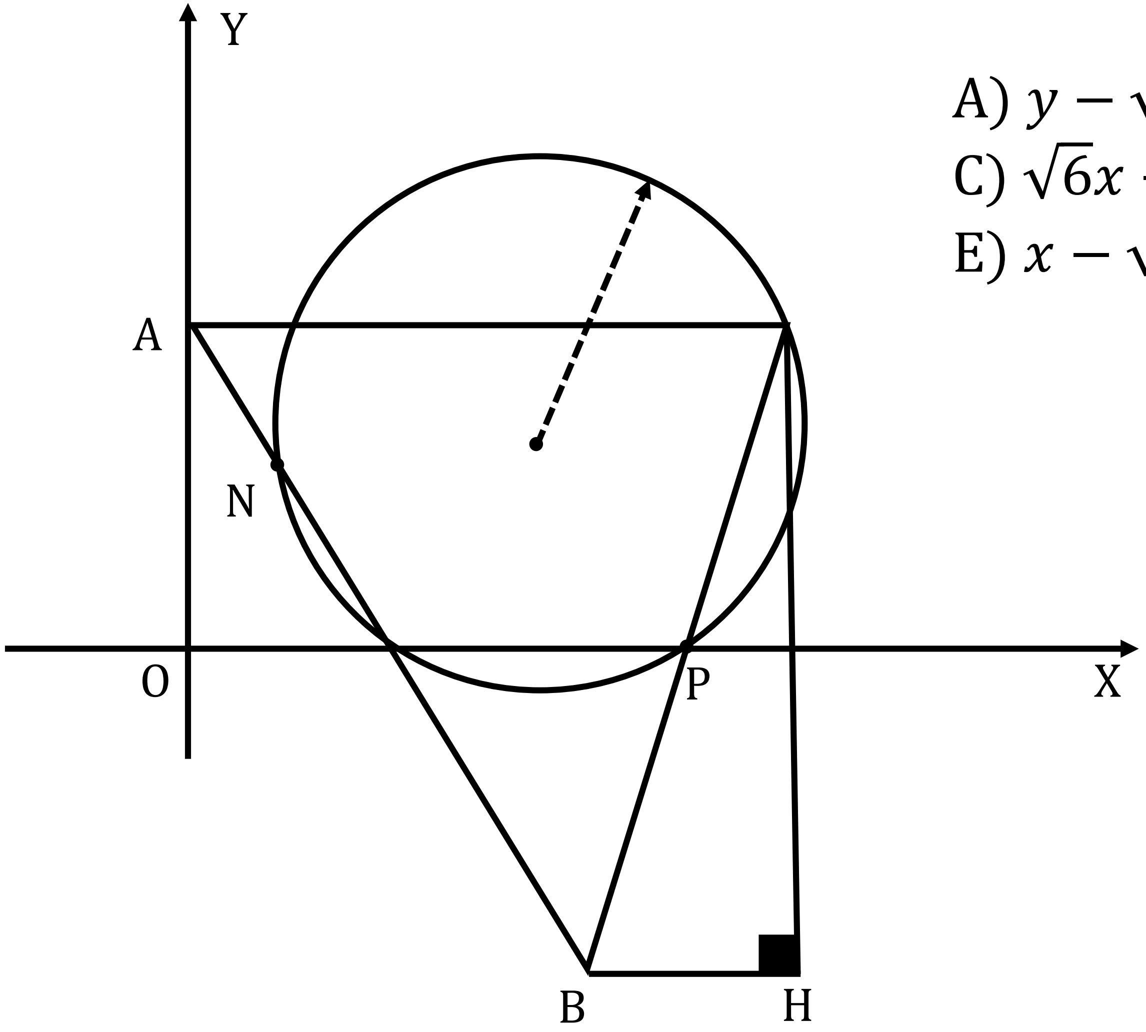
$y - 0 = \tan\theta(x - a)$

$\therefore \mathcal{L}: \tan\theta . x - y - a\tan\theta = 0$

CLAVE A

Adicional 5:

Según el grafico, (AB)(BN)=7$(BH)^2$ y OP=6. Determine la ecuación de la recta PB.



A) $y - \sqrt{3}x - 6\sqrt{3} = 0$

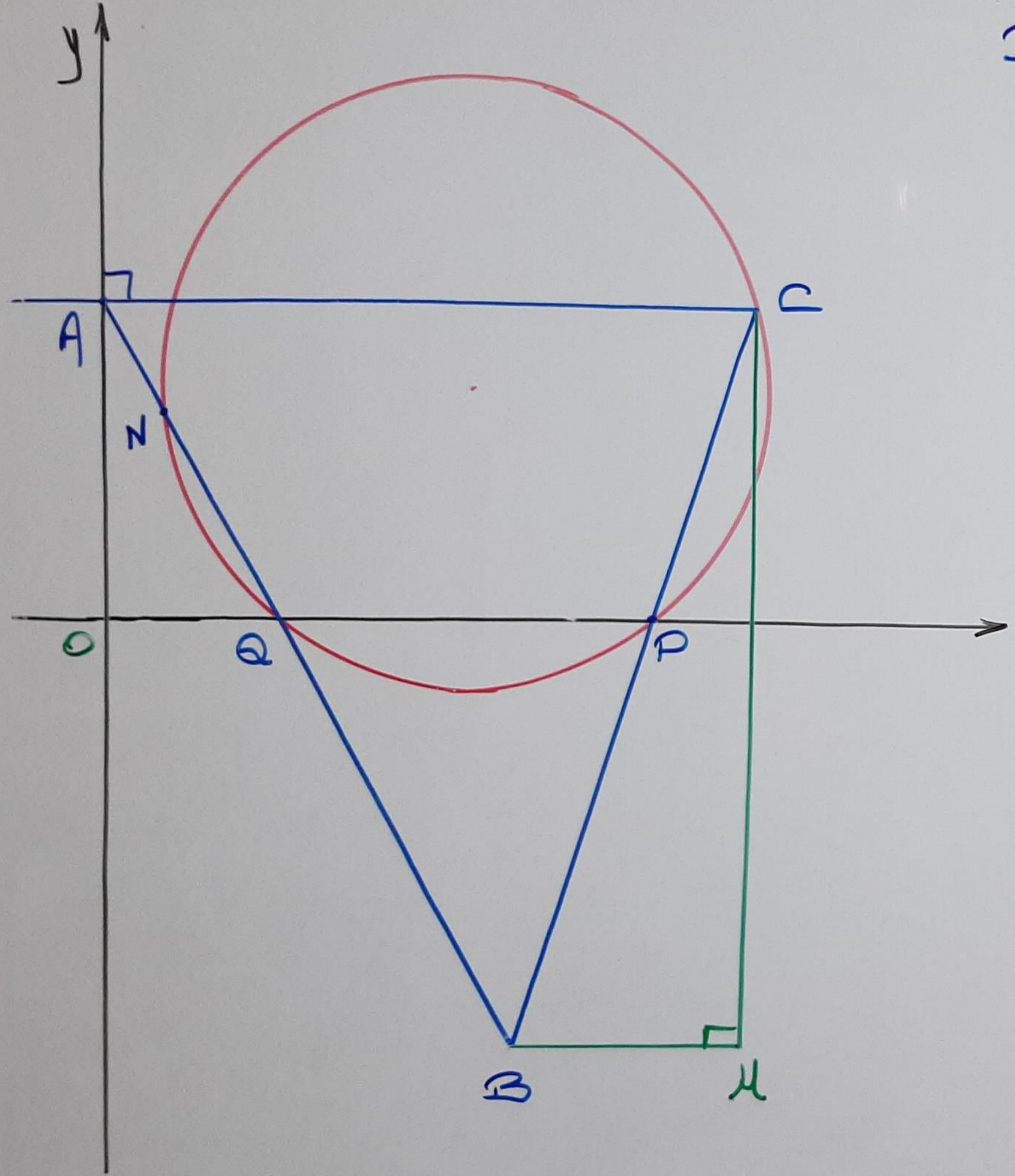
B) $x + 3\sqrt{3}y - 6 = 0$

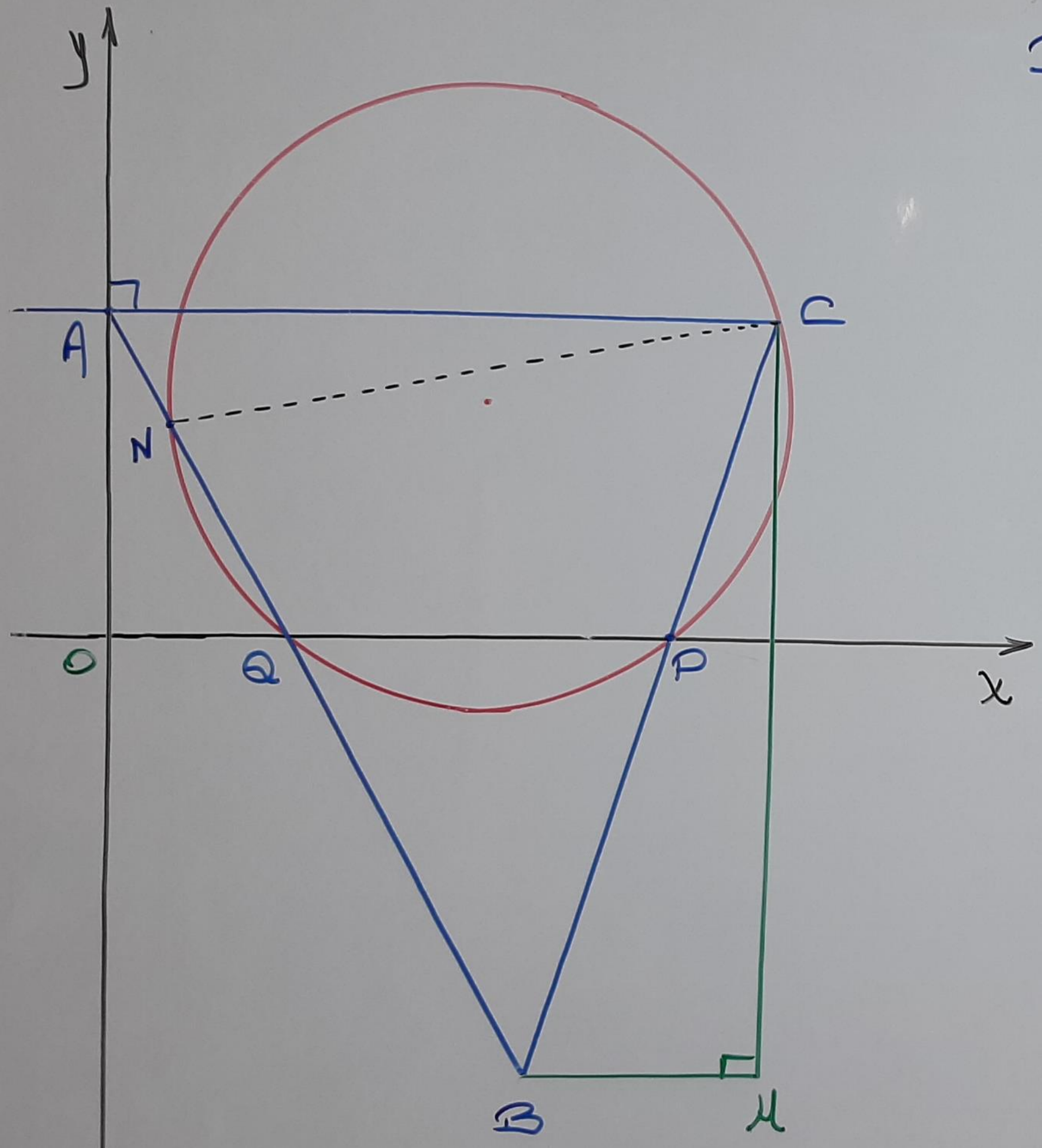
C) $\sqrt{6}x - y - 6\sqrt{6} = 0$

D) $\sqrt{6}x - y - 3\sqrt{6} = 0$

E) $x - \sqrt{3}y - 6 = 0$

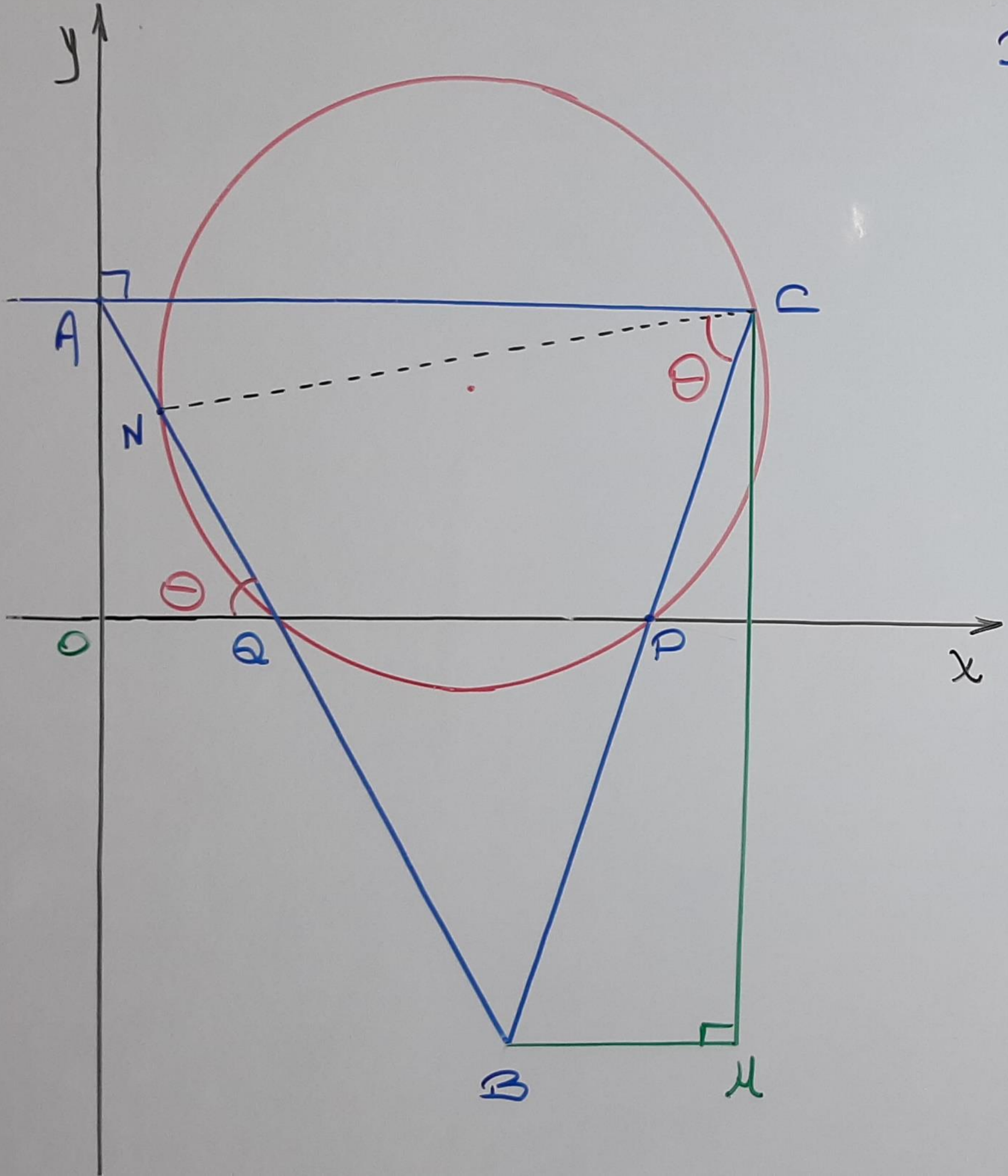
Dato: $AB \cdot BN = 7 \cdot BH^2$, $OP = 6$





Dato: $AB \cdot BN = 7 \cdot BH^2$, $OP = 6$

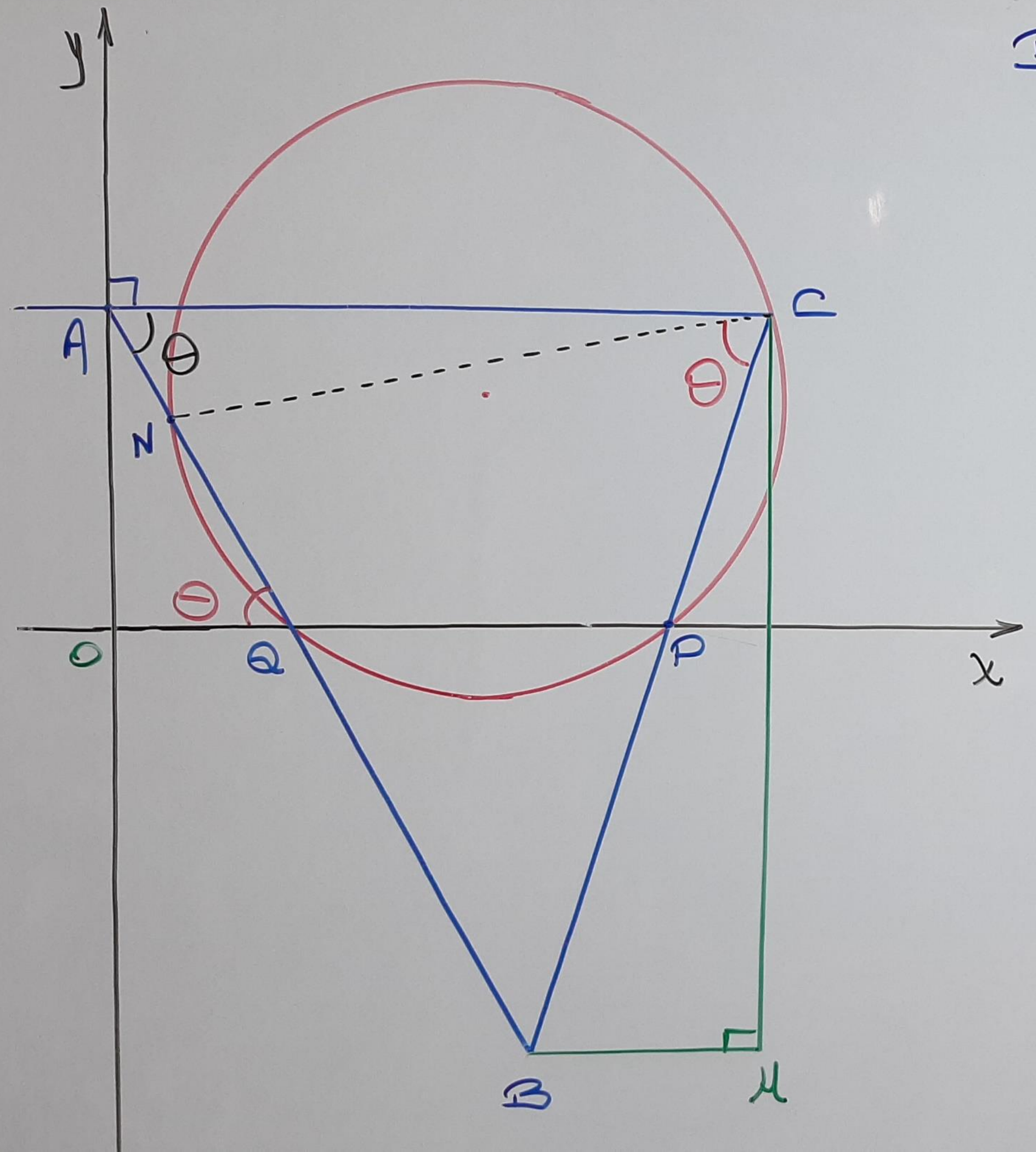
i) Se traza $\overline{CN}$ ↳ $\square NCPQ$ es Inscriptible



Dato: $AB \cdot BN = 7 \cdot BH^2$, $OP = 6$

i) Se traza $\overline{CN}$ ↳ $\square NCPQ$ es Inscriptible

Si: $\measuredangle NCP = \theta \rightarrow \measuredangle NQO = \theta$

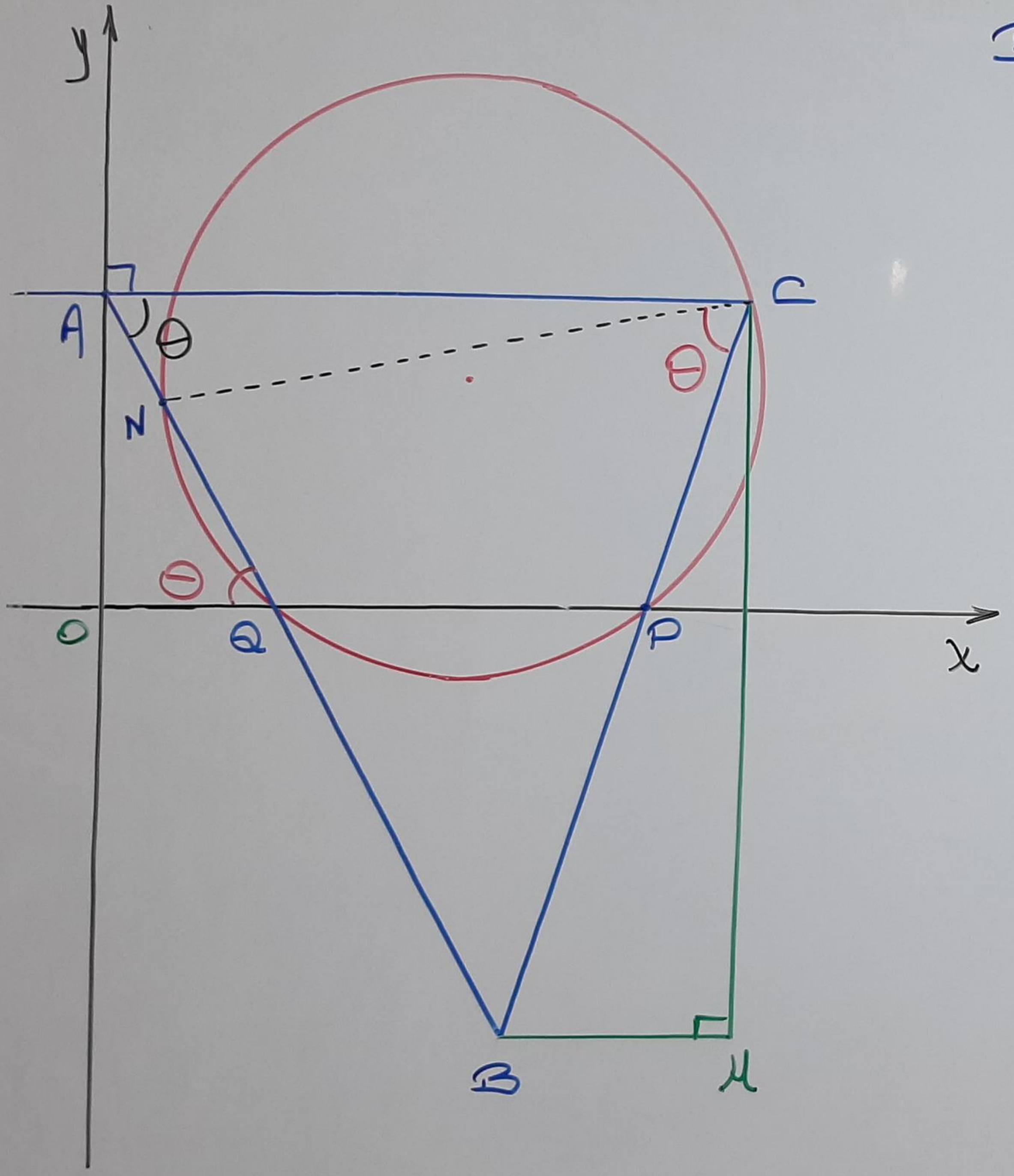


Dato: $AB \cdot BN = 7 \cdot BH^2$, $OP = 6$

i) Se traza $\overline{CN}$ ↳ $\square NCPQ$ es Inscriptible

Si: $\measuredangle NCP = \theta \rightarrow \measuredangle NQO = \theta$

ii) $\overline{AC} \parallel \overrightarrow{OX} \rightarrow \measuredangle CAN = \theta$



Dato: $AB \cdot BN = 7 \cdot MH^2$, $OP = 6$

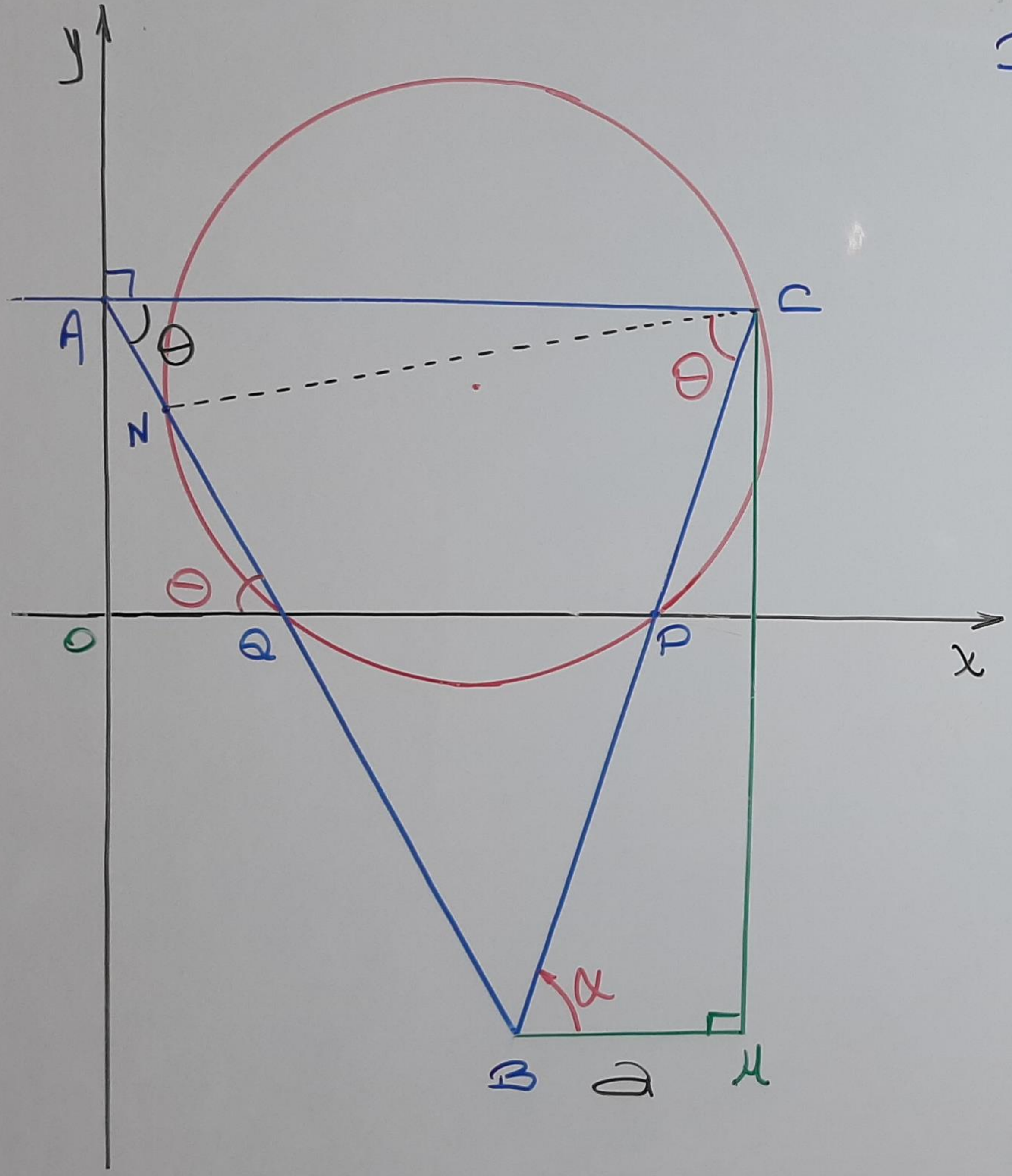
i) Se traza $\overline{CN}$ y $\square NCPQ$ es Inscriptible

Si: $\measuredangle NCP = \theta \rightarrow \measuredangle NQO = \theta$

ii) $\overline{AC} \parallel \overrightarrow{OX} \rightarrow \measuredangle CAN = \theta$

Teorema de $\triangle$ semejantes:

$BC^2 = AB \cdot BN$



Dato: $AB \cdot BN = 7 \cdot BH^2$, $OP = 6$

i) Se traza $\overline{CN}$ ↳ ◻NCPQ es Inscriptible

Si: $\measuredangle NCP = \theta \rightarrow \measuredangle NQO = \theta$

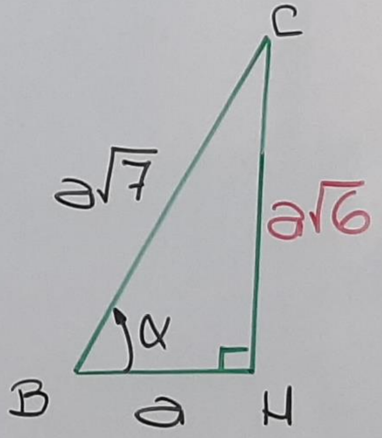
ii) $\overline{AC} \parallel \overrightarrow{OX} \rightarrow \measuredangle CAN = \theta$

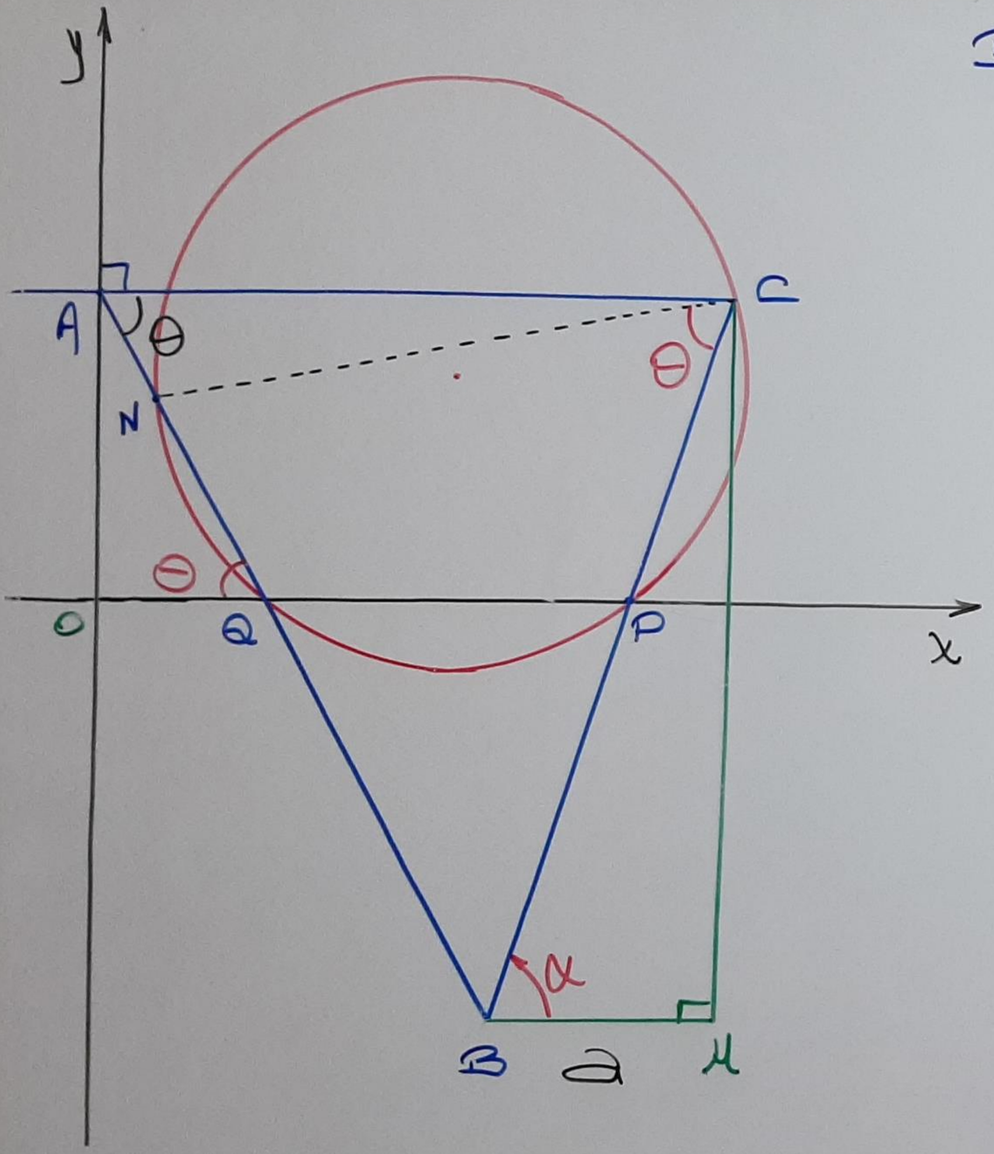
Teorema de △ semejantes:

$BC^2 = AB \cdot BN$

$BC^2 = 7 \times a^2$

$BC = a\sqrt{7}$





Dato: $AB \cdot BN = 7 \cdot BH^2$, $OP = 6$

i) Se traza $\overline{CN}$ → $\square NCPQ$ es Inscriptible

Si: $\measuredangle NCP = \theta \rightarrow \measuredangle NQO = \theta$

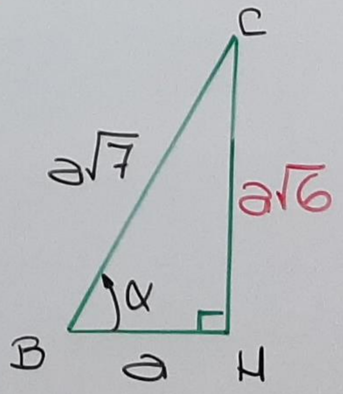
ii) $\overline{AC} \parallel \overrightarrow{OX} \rightarrow \measuredangle CAN = \theta$

Teorema de $\triangle$ semejantes:

$BC^2 = AB \cdot BN$

$BC^2 = 7 \times a^2$

$BC = a\sqrt{7}$



$\mathscr{L} \begin{cases} P(6;0) \\ m = \tan\alpha = \sqrt{6} \end{cases}$

FIN DE LA SESIÓN

PRACTICA Y APRENDERÁS